

**Washington State Department of Natural Resources
Lake Whatcom Landscape Plan**

**Responses to Public Comments Received Regarding the
Preliminary Draft Environmental Impact Statement (PDEIS)**

March 7, 2003

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I Overview

The Washington State Department of Natural Resources (DNR) Lake Whatcom Landscape Plan will provide management strategies for environmental protection on about 15,660 acres of forested state trust lands in the Lake Whatcom watershed, while preserving the trust lands' economic viability and accessibility for citizens. State trust lands produce income for trust beneficiaries such as Whatcom County schools and public school construction statewide.

The 2000 Legislature directed DNR to develop a plan for the state-owned trust lands in the watershed and postponed timber harvests on DNR-managed trust lands there until the plan is completed. DNR held three public meetings in the fall of 2000 to obtain community input about issues to address. In the plan, DNR will address issues of interest suggested by the citizens, such as timber harvest, forest age rotations, unstable slopes, buffers on streams and wetlands, and road management for trust lands, as well as management goals for the trust lands within the watershed.

The Lake Whatcom Landscape Plan EIS

DNR is combining plan development with the Environmental Impact Statement (EIS) process for the Lake Whatcom Landscape Plan. The State Environmental Policy Act (SEPA) process was formally initiated with the scoping notice released on August 31, 2001 and a public meeting held September 12, 2001.

The scoping process involves the public in defining what is to be examined through the EIS process. It helps narrow the focus of the EIS to significant environmental issues and eliminate those issues which are insignificant or not directly related to the proposal. SEPA's procedural provisions require the "consideration of environmental impacts...that are likely, not merely speculative."
[WAC 197-11-060(4)(a)]

Informal EIS scoping has been underway since March 2000. A Scoping Summary reflecting comments received through October 1, 2001, was released by DNR on December 21, 2001. DNR received approximately 500 comments at meetings with residents, Tribes and others.

Although it is not a SEPA requirement, DNR released a Preliminary Draft Environmental Impact Statement (PDEIS) on September 13, 2002 as part of the scoping process. DNR received comments from 180 submissions, some of which addressed a variety of topics. The official comment period closed October 28, 2002; however, DNR received and accepted comments as late as November 14, 2002. This input was grouped by source: letters, e-mails, public meeting comment cards, public meeting oral comments, and comments received after October 28. Some of the contributors provided input through more than one of the sources. The comments are summarized and addressed in this document.

The PDEIS described five alternatives, reflecting a wide range of management options:

- Alternative 1 (no action) incorporates existing DNR policies, legal requirements and management commitments, including but not limited to the Forest Resource Plan, Forest

Practice Rules and Habitat Conservation Plan. This alternative is consistent with the Tier 3 alternative identified in DNR's statewide sustainable harvest calculation.

- Alternative 2 adds the legislative requirements of E2SSB 6731 to the no action alternative. It reduces the geographic area available for active forest management.
- Alternative 3, developed by the Lake Whatcom DNR Landscape Planning Committee, further reduces the geographic area available for active forest management, increases the number of trees retained after harvest and lengthens the harvest rotation age. It also increases coordination with tribes to protect cultural resources.
- Alternative 4, the second alternative developed by the Committee, further reduces the geographic area available for active forest management and further increases the trees retained and harvest rotation age.
- Alternative 5, the restoration alternative, was developed by the committee in response to comments received during the earlier public scoping process. This alternative pursues a restoration approach that focuses on restoring older forest conditions, with limited, short-term silvicultural activities; it relies on non-traditional means of securing alternative revenue to meet trust revenue obligations.

Decisions haven't been made yet about the final contents of the Lake Whatcom Landscape Plan for DNR-managed trust lands. As it did with the December 21, 2001 scoping summary, DNR has responded to comments regarding the PDEIS in terms of how issues raised will be addressed during the remaining planning process and provided technical or policy information where appropriate.

The Planning Process

The DNR has been working since 1993 to develop a long-range landscape management plan for the forested trust lands in and adjacent to the Lake Whatcom watershed. In 2000 the Legislature directed DNR to work with an inter-jurisdictional committee to address issues in the Lake Whatcom watershed, including water quality and public safety, in developing a landscape plan. DNR formed the Lake Whatcom DNR Landscape Planning Committee, comprised of affected agencies, jurisdictions, tribes and citizen representatives from Whatcom County, Water District 10, City of Bellingham, Washington State Departments of Health, Ecology and Fish and Wildlife; the Lummi Tribe and two private citizens. In addition to the Committee, the DNR has consulted with other major forestland owners, the Lake Whatcom Management Committee and the Forestry Forum, watershed residents, other organizations, the Nooksak Tribe, and state and local elected officials.

DNR and the Committee drafted a set of four roles for the landscape (Environmental, Cultural, Economic and Community) and a reached consensus on a set of draft objectives to guide management activity decisions. Scoping comments were received in Fall, 2001, and used by the DNR and the Committee to draft five different management strategies for the DNR-managed lands in and near the Lake Whatcom watershed. These five strategies were presented and analyzed as the alternatives in the PDEIS. The first four alternatives meet specific and agreed upon forestland management objectives, allowing varying degrees of active forest management to produce revenue for beneficiaries. The fifth alternative, developed in response to scoping comments, doesn't incorporate all the committee's objectives but instead focuses on restoration of an older forest condition. This alternative would require reliance on viable non-traditional revenue opportunities and funding sources for the beneficiaries.

The next step in the planning process is identification of a preferred alternative and its review and analysis in a Draft Environmental Impact Statement (DEIS). The DNR is working with the Committee to develop a preferred alternative, utilizing the information assembled throughout the process. If consensus cannot be reached, and part or all of the Committee recommends a different alternative, the DNR will include and analyze it, along with the preferred alternative, in the DEIS. Any changes in department policy would require the approval of the Board of Natural Resources.

Under the current timeline a draft preferred alternative would be presented to the Board of Natural Resources this spring (2003). Work on the DEIS will begin upon adoption of the preferred alternative by the Board of Natural Resources. The DEIS will be made available to agencies, Tribes, beneficiaries, local residents and other interested parties for review and input during comment periods. DNR will prepare a response to the comments on the DEIS and then prepare and issue the final EIS (FEIS).

II PDEIS Scoping Summary

During earlier phases of scoping the following topics were identified as being potentially significant and related to the proposed Lake Whatcom landscape plan. Comments received regarding the PDEIS suggest participants in the process have continuing interest and concern about:

- **Water quality:** high quality drinking water, and water to support plants, fish and wildlife.
- **Cumulative effects** of DNR activities, in combination with activities not under DNR's control.
- **Physical landscape** (geology and soils): concerns about soil erosion potential in relation to geomorphology and geologic hazards, including mass wasting, debris flows and sediment delivery.
- **Forest environment:** maintaining a functional forest ecosystem and recognizing the value of recreational and spiritual forest experiences.
- **Fish and Wildlife:** meeting habitat needs.
- **Human safety:** interest that health and safety should come before economic returns.
- **Cultural resources:** the Lummi and Nooksack tribes, as well as non-tribal citizens, are interested in DNR protecting culturally significant registered and non-registered sites; ensuring access for traditional uses; planting species for traditional uses; protecting culturally modified trees and providing new sites for traditional uses; and protecting plant materials from chemical spraying hazardous to using those materials for traditional uses.
- **Recreation:** recognizing the social and economic value of recreational opportunities as an asset, and on the other hand, limit recreation to minimize the environmental risks.
- **Aesthetics:** protect views and beauty in planning and conducting timber harvests.
- **Air quality:** questions about wildfire risk.
- **Mercury:** concerns about presence/source of mercury in Lake Whatcom water, and potential release of mercury into atmosphere in the event of wildfire.
- **Trust income:** statements run the full spectrum, suggesting that current revenue sources such as timber harvest and electronic communication sites be pursued, restricted or eliminated; and that new sources like carbon sequestration, green certification and development rights credits be considered.
- **Social and economic consequences of the alternatives:** Concerns were expressed from three perspectives: 1) whether carrying out socially and environmentally sound forestry

would be so costly that there is no real economic return; 2) whether the social and environmental costs of forestry are too high, regardless of the economic return; 3) whether sound environmental constraints can be agreed to that meet other social needs and provide reasonable economic return from forestry. Concern was voiced over DNR's responsibility to provide revenue to the trust, the effect of reduced harvest on trust revenue and the possibility that reduced harvest would increase the tax burden of Washington citizens.

III Summary of Comments on PDEIS and DNR's Responses

Comments submitted centered on five key areas: the natural environment, the built environment, the five alternatives analyzed in the PDEIS document, the EIS process, and legal and policy issues. The input related to each of these subject areas is presented below, nearly always using the commenters' exact wording. DNR responses follow the comments.

For tracking purposes, DNR assigned an alphanumeric code to each comment that we received. The comments were sorted and coded according to how they were submitted, including by letter, (L), e-mail (EM), comment cards from the October 10, 2002 public meeting (CC) and oral comments from the October 10, 2002 public meeting (PM). When commenters addressed more than one topic in their remarks, DNR numbered each topic separately in cataloging the input. (For example, a letter which addressed five separate issues or topics would have been labeled "L" for letter and assigned a number [L200]; each of the issues, topics or comments (labeled "C") would have been numbered sequentially [L200/C1, L200/C2, L200/C3, L200/C4, L200/C5].)

DNR also accepted comments submitted after the October 28, 2002 formal deadline. They are addressed in Appendix C because time constraints prevented DNR from processing and responding to them identically to the comments received during the formal comment period.

Please consult the table in Appendix B for the list of commenters and their alphanumeric identifiers. To read the comments in their entirety and within the context of the full list of letters, e-mails, public meeting cards, public meeting oral comments and comments submitted after the October 28 formal deadline, please go to the DNR web site, **www.wa.gov/dnr**.

Natural Environment

Comments about the natural environment largely focused on citizens' fears and concerns about risks to public safety from landslides (mass wasting) and the potential damage to Lake Whatcom's drinking water quality that could result from mass wasting on DNR-managed lands within the watershed. Comments also addressed air and water quality, mercury, forest functions and hydrological conditions, the use of fertilizers and chemicals, and old growth forests within the Lake Whatcom watershed.

Verbatim excerpts from comments received regarding the natural environment are grouped by topic whenever possible.

NE1 *Risk of erosion/sediment transport*

- Prefers Alt 5 - The watershed will be vulnerable after it's been logged because of scraping little to no existing dirt from rock foundation. If it's logged there'll be little dirt, earth or material to generate a tree, let alone a forest. In harvesting timber, dirt will be bulldozed, losing the minerals, and soil will be lost. All will end up in Lake Whatcom via erosion from steep terrain with nothing left to slow down existing and changing run-off. [L5/C2]

Response: The apparent assumption that soils are shallow over bedrock throughout the Planning Area, and that road construction or timber harvesting would necessarily result in accelerated water runoff, severe erosion and sediment transport to streams is not correct. Road construction and timber harvesting on sites that are most sensitive to erosion (riparian areas, unstable slopes and potentially unstable slopes) and that have high potential for delivery of sediment to streams are significantly constrained under Alternative 1 and further constrained under Alternatives 2-5. For example, under Alternative 1 – the least restrictive no change alternative – the land significantly constrained comprises 28.5 percent of the Planning Area. In addition the Watershed Analysis Surface Erosion report stated the following conclusions after evaluating 39 recent timber harvest units on DNR and private lands: Surface erosion was related more to harvest methods (cable vs. ground-based equipment) than to soil type or slope gradient; some sediment was delivered to streams on about one-third of the harvest units. Where soil erosion occurred and/or sediment was delivered to streams, the amount was minor in all cases; and, compliance with Forest Practices Rules effectively minimized soil erosion and delivery of sediment to streams.

NE2 *Risk of mass-wasting/mud slides*

The response follows this series of six comments:

- Prefers Alternative 4 - I am concerned about logging activity on the surrounding slopes, some of which are too steep for road construction and logging without endangering public safety through landslides and harm to the water quality. I urge you to adopt Alternative 4. [L25/C1]

- Prefers Alternative 5 - If the watershed is logged the possibilities are increased for rock and mudslides because of the rain, snow and freezing on Lookout Mountain. How many cubic yards of earth will be transported to the lake and municipal water system? [L5/C4]
- Favors Alternative 5 - The geological and hydrological condition of the Whatcom watershed are such that logging on this land will result in serious erosion and possible landslides due to the unstable slopes resulting in the fouling of our drinking water sources, destruction of salmon habitat and serious damage to private and public property. [L46/C2]
- The effect of slope failure on aquatic resources under Alternative 1 is underestimated. [L58/C5b]
- I would also like to see the cuts be spread around and kept smaller to decrease the visible impact as well as prevent large areas to be cleared of foliage and the structures that hold the slopes. (No preference stated, but wants to balance protection and income.) [EM2/C3]
- Prefers Alt 4. Our neighborhood also has grave concerns about the impact of logging on a very steep and historically unstable mountainside. This is an area that has already been hit by two major landslide events in the last twenty years. Further logging on Lookout cannot possibly help the situation, but in all likelihood increase the risk of future slides. [EM3/C2]

Response: Road construction and timber harvesting on unstable and potentially unstable slopes could increase the potential for mass wasting events. Unstable and potentially unstable portions of the watershed are shown on Maps G-1 and G-2 of the PDEIS, and/or are described in writing. Road construction and timber harvesting is "...specially constrained ..." on considerable acreage (28.5 to 87 percent) of the planning area under the various Alternatives. Activities proposed under all Alternatives are regulated by standard Forest Practices Rules that address the protection of slope stability, riparian areas, water quality, and public safety. Watershed Analysis Prescriptions and DNR's Habitat Conservation Plan (HCP) procedures provide additional protection for slope stability, riparian areas and water quality. All activities proposed under Alternatives 2 – 5 must comply with legislation (E2SSB 6731). This legislation prevents new road construction or timber harvesting on unstable slopes. Also, activities planned on potentially unstable slopes under Alternatives 2 – 5 require on-site investigation by appropriate DNR specialist(s) and review by the inter-jurisdictional committee. Road construction and timber harvest activities meeting these standards, under any of the Alternatives, are unlikely to significantly increase the likelihood of mass wasting events that could damage stream channels and water quality, or threaten public safety.

- Favors Alt 4 - The larger the buffers on wetlands, streams, and unstable areas the better...Our watershed is prone to rain-on-snow events. Road construction on unstable slopes is probably the riskiest venture that you could do in a municipal drinking water source for 85,000 people. [L45/C2]

Response: See response to NE2 [L25/C1] above; in addition, potential impacts from rain-on-snow events were considered and have been addressed through Watershed Analysis Prescriptions that

seek a balance between natural resource protection and timber industry viability. These prescriptions apply under all Alternatives.

- *Follow the Lake Whatcom Bill:* Several means of achieving those objectives are stated in ESSB 6731 itself: riparian management zones along all streams, including type 5 streams; strict limitations on harvest and road construction upon potentially unstable slopes; prohibitions on new roads and limited road reconstruction on unstable slopes; direction to DNR to develop a road management plan and to work with an inter-jurisdictional committee... And the legislature also instructed DNR to “build on the existing draft Lake Whatcom landscape plan and incorporate both new information from the community and new scientific information when available.” It is clear from the PDEIS literature citations that you have ignored this directive: you have failed to examine and incorporate any recent scientific record. Published data that is widely known is simply ignored. Protecting water quality from landslide-related sediment is a critical element of the landscape plan; however, the most current relevant reference on this topic in the PDEIS under Earth is Varnes, 1978. That was 24 years ago and a great deal of research has been published since that time. Dr. Dave Montgomery is a well-known expert in the field. We have included a review of this PDEIS by Dr. Montgomery to assist your future efforts to incorporate science in the landscape plan. We also request that future environmental documents and analysis rely on current scientific literature. [EM16/C6]

Response: The slope stability related information provided by your reviewer will be considered during development of the DEIS. An attempt was not made to compile a list of relevant mass wasting literature during development of the PDEIS, thus relatively few research publications were cited. During preparation of the DEIS DNR will consider the studies and articles that have been recommended in comments on the PDEIS and throughout the scoping process. However, it is not true that recent research results were ignored during development of the Alternatives. The crux of the results of the vast body of forest slope stability research is general knowledge to professionals dealing with the subject. This knowledge is explicitly embodied in current Forest Practices Rules (including the Board Manual), and in the Watershed Analysis Mass Wasting report and Prescriptions. It was also incorporated into the definition and delineation of potentially unstable slopes for the Lake Whatcom Planning Area.

- The legislative intent was to protect public safety and Page 25 of the PDEIS states that the Department has adopted the following objective: Objective 1: Ensure no significant risk to public health, safety and resources, and tribal archaeological and cultural resources from forest management related mass-wasting events. We ask that DNR select an alternative that meets that high standard.... We recommend DNR examine the following: Schmidt, K. M., Roering, J. R., Stock, J. D., Dietrich, W. E., Montgomery, D. R., and Schaub, T., 2001. Root Cohesion Variability and Shallow Landslide Susceptibility in the Oregon Coast Range. Canadian Geotechnical Journal. V. 38, pp 995-1024, Montgomery, D. R., 1994. Road Surface Drainage, Channel Initiation and Slope Instability. Water Resources Research. 30(6): 1925-1932. We ask that the risk of landslides should not merely be minimized or reduced: DNR must ensure that there is no significant risk to public health, safety and resources from logging related mass wasting. We ask that DNR adopt an alternative that ensures no significant risk to public health, safety and resources from logging related mass wasting. As laid out below, the only alternatives that accomplish this are Alternatives 4 and 5. [EM16/C10]

Response: The information contained in the literature cited will be considered in developing a preferred alternative and in the analysis for the DEIS. Management strategies developed for Alternatives 2-5 are specifically intended to meet Objective 1 related to mass wasting as you have stated it. Activities proposed under all Alternatives are regulated under current Forest Practices Rules, Watershed Analysis Prescriptions, and DNR's HCP procedures. These regulations address the protection of slope stability, riparian areas, water quality, and public safety. All activities proposed under Alternatives 2 – 5 must comply with legislation (E2SSB 6731). This prevents new road construction or timber harvesting on unstable slopes. Also, activities planned on potentially unstable slopes under Alternatives 2 – 5 require on-site investigation by appropriate DNR specialist(s) and review by the inter-jurisdictional committee. Analysis in the PDEIS indicates that road construction and timber harvest activities meeting these standards, under any of the Alternatives, are unlikely to significantly increase the likelihood of mass wasting events that could damage stream channels and water quality, or threaten public safety.

NE3 *Alternatives 1 and 2 and mass wasting*

- *Mass Wasting* – Alternative 1 fails to include important provisions to protect aquatic resources from mass-wasting events. (See specifics in WDFW letter, along with citations from Furniss et al. 1991 and Sidle et al. 1991.) [L58/C5a]

Response: Alternative 1 requires that road construction and timber harvest proposals comply with Forest Practices Rules, Watershed Analysis Prescriptions, and DNR's HCP procedures. Watershed Analysis Prescriptions apply to areas identified as being sensitive to mass wasting based on the occurrence of slope failures interpreted from nine separate sets of aerial photos taken between 1943 and 1995. Watershed Analysis Prescriptions were designed to prevent the types of road and harvest related activities that contributed to past mass wasting events. In addition to the above restrictions, Alternative 2 requires compliance with E2SSB 6731. Literature cited in the letter from the Washington State Department of Fish and Wildlife will be reviewed and incorporated in the DEIS as appropriate.

- In reading the Preliminary Draft E.I.S. I considered implications for evaluating the potential for each of the Alternatives to meet the stated objective to “*ensure no significant risk ... from forest management related mass wasting events*”... Alternatives 1 and 2 provide the weakest assurance of no significant risk. Assuming that the mass-wasting prescriptions relating to timber harvest in the Lake Whatcom Watershed Analysis are less restrictive than those proposed under Alternative 2, neither alternative provides assurance of no significant elevation of landslide risk from forest management. The alternatives provide substantial leeway for risk taking upon “*on-site evaluation by a DNR specialist.*” The degree to which this may prove effective at ensuring no significant risk depends not only upon the training and talent of the DNR specialist(s) but also on the institutional definition of acceptable risk that guides their interpretations and assessments. Given DNR's track record at managing landslide risk in the past, the assurance that risky actions such as “*harvest and road construction upon potentially unstable slopes*” shall be “*carefully regulated*” should provide little solace to a family living at the base of a potentially unstable slope. [EM16/C45M]

Response: See response to NE2 [L25/C1] above.

- Moreover, the draft E.I.S. indicates that Alternative 1 would result in construction of 2.7 miles of road on unstable or potentially unstable slopes. It is difficult to see how to reconcile this inherently risky action with the goal of ensuring no significant risks of management related landsliding. Although the draft E.I.S. indicates that under Alternatives 1 and 2 the risk of landsliding associated with forest practices would be substantially mitigated by adhering to current forest practice rules, those rules were not designed to protect public safety, they were designed to accommodate timber harvest to the extent possible while mitigating potential adverse impacts on salmonids. Risk is the product of hazard (the chance of occurrence) and the impacts that result from such occurrences. Hence, the bar is higher for assessing no significant risk when public safety is at issue. It is disingenuous to simply maintain without critical review that standards set to protect fish are adequate to protect people. [EM16/C46M]

Response: These comments are based on the false premise that current slope stability-related Forest Practices Rules were not designed to protect public safety. See WAC 222-16-050 (1) (d). Also, please note that Alternative 1 serves as the no action alternative, for comparative purposes.

- Identifying the existing active landslides and restricting actions on them should not be difficult to do (at least not from a technical perspective). In contrast, the identification of future landslide sites among those considered to be potentially unstable is notoriously difficult (if not impossible), and so it is in the management of the potentially unstable slopes that the major differences in the alternatives play out. Alternative 2 allows harvesting and road construction on potentially unstable slopes upon consideration of “*inter-jurisdictional committee and specialists recommendations*”. Such consideration provides no guarantee that decisions would in fact “*ensure no significant risk.*” [EM16/C47M]

Response: Road construction and timber harvesting on potentially unstable slopes could pose some inherent risk. That is the reason for required on-site involvement by appropriate DNR specialist(s) and the inter-jurisdictional committee. Actual level of risk will vary with every site and is dependent upon interactions between proposal details and numerous on-site conditions.

NE4 *Mapping of unstable and potentially unstable slopes and accuracy of analysis*

- *Mapping of Unstable and Potentially Unstable Slopes* (page 95) – We recommend inclusion of a short discussion of the mapping methods (aerial photography, ground survey) used to identify the unstable and potentially unstable slopes. The type of method(s) used could potentially influence the accuracy of areas that are available for timber harvest. [L58/C11]

Response: See response to NE2 [L25/C1] above. The methods and rationale used in defining and mapping unstable and potentially unstable slopes are described in Appendix D, Section G of the PDEIS.

- There is an enormous difference between unstable slopes and potentially unstable slopes. For the purpose of developing landscape alternatives and their analysis, a map is required that distinguishes between the two. They are not mapped separately and existing maps are

admittedly inaccurate, both of which call into question the very basis upon which the PDEIS alternatives were developed and analyzed. As such, the mass wasting analyses, particularly in Alternatives 2-5, are fundamentally flawed and need to be rewritten. [L59/C18]

Response: We disagree with the statement that there is an enormous difference between unstable and potentially unstable slopes. Perhaps the distinction is clear in the definition, but it often becomes less obvious when delineating such conditions on aerial photos and topographic maps. That is the reason behind the statement in Appendix D, Section G of the PDEIS that "... the specific location of stable, potentially unstable, and unstable slopes are probably not represented entirely accurately on the map." This situation, however, should not negate the utility of the information for planning-level purposes and the development of Alternatives. On-site delineation of unstable vs. potentially unstable slopes will occur during operational-level planning.

- I feel that the unstable areas mapped in Alt. 2-5 are over exaggerated. These areas need to be ground proven before they are put on the map – once they are published they never are changed. They may be added to but not reduced. History has proven that. [EM8/C7]

Response: The areal extent and acreage of unstable and potentially unstable slopes shown on the maps are likely not totally accurate. We agree that – ideally – the information on the maps should have been verified through on-site evaluation; however, for broad-scale planning purposes that is not practical. On-site delineation of unstable and potentially unstable slopes will occur during operational-level planning. As a result of that process, more or less acreage than is indicated on the map may fall into a given slope stability category. The final location and design of road construction and timber harvest proposals will be based on field-verified, site-specific slope stability conditions.

NE5 *Not all unstable slopes should be off-limits.*

- Not all unstable slopes should be off limits. Sometimes different road-building or harvesting techniques will alleviate the problem. The plan should be flexible so the experts on the ground can make the decisions on how best to manage the land. Black and white rules....are archaic and detrimental to the watershed. [EM8/C7]

Response: Watershed Analysis Prescriptions, HCP commitments, and legislation (E2SSB 6731) may limit the opportunity to use innovative road construction and timber harvesting techniques to mitigate unstable conditions. For example, activities on some unstable slopes identified in the Watershed Analysis report are precluded by Prescriptions under all Alternatives. And, E2SSB 6731 simply prohibits any new road construction on unstable slopes under Alternatives 2 – 5.

NE6 *Large woody debris and debris flows*

- I am puzzled by the statements in all the alternatives regarding the removal from Smith Creek of "large woody debris, which increases the risk of log jams and the resulting debris torrents." Contrary to the logic implied by the EIS statements, the creation of log jams most likely would act to retard the propagation of debris flows. Cutting the largest woody debris "into chunks" will increase the potential for entraining wood debris into debris flows and will

eliminate the effect of large stable log jams on retarding debris flow propagation. These effects will increase the potential for long runout debris flows and therefore the probability of impact to downstream residents. In addition, wholesale removal, or cutting up of large woody debris from the creek will do little to reduce the risk of catastrophic debris flows and will certainly result in degraded habitat conditions in the creek. [EM16/C44M]

Response: As a result of severe flooding around Lake Whatcom in 1983 there was a court-ordered settlement for Smith Creek. It requires the removal of large woody debris which increases the risk of log jams and the resulting debris torrents.

NE7 *Alternative 3 and mass wasting*

- In reading the Preliminary Draft E.I.S. I considered implications for evaluating the potential for each of the Alternatives to meet the stated objective to “*ensure no significant risk ... from forest management related mass wasting events*”..... Alternative 3 provides for a 140’ buffer around the unstable ARS’s 1,2, 3 and 4, which encompasses ancient and dormant landslides, and incised stream channels and would preclude almost all roads on potentially unstable slopes. In addition, Alternative 3 would allow up to 50 percent harvesting on potentially unstable slopes. This prescription for potentially unstable slopes is experimental. I know of no studies that have demonstrated that a 50 percent partial cut on potentially unstable slopes (such as hollows, headwalls, and slopes steeper than 70 percent as they are defined in the Preliminary Draft E.I.S.) would “*ensure no significant risk*” of landsliding from timber harvest. To the contrary, an analysis of the effect of root reinforcement on slope stability recently published in the Canadian Geotechnical Journal (Schmidt et al., 2001; a study which I was a co-author on), found that spatial variability in root strength—such as one might anticipate would result from a partial cut—was associated with those potentially unstable sites that generated rapidly moving, highly destructive debris flows in the Oregon Coast Range. In other words, the partial cut alternative for managing potentially unstable slopes is an experiment that carries with it an unknown element of risk, a risk that recent research suggests may not be minimal. Therefore, I cannot conclude that Alternative 3 would meet the stated objective of not significantly elevating the risk of management-related landsliding. [EM16/C48M]

Response: The option under Alternative 3 to harvest part of the timber (something less than 50 percent of the tree stems) on potentially unstable slopes is based on the recognition that the mass wasting potential hazard and associated risks vary – often within short distances. The amount of timber actually harvested from a specific, potentially unstable area would be based on consideration of numerous site-specific slope stability and timber stand conditions. All activities on potentially unstable slopes require on-site evaluation by DNR specialist(s) and review by the inter-jurisdictional committee. Experience has shown that the partial-harvest option can be implemented on some potentially unstable slopes without significantly increasing mass wasting potential. The cited publication (Schmidt, et al., 2001) dealing with tree root strength appears to be a valuable addition to the growing body of information on this important forestland slope stability related topic and will be considered in development of the DEIS.

- *Alternative 3:* This alternative provides greater protection of unstable slopes and further reduces the risk of landslides on potentially unstable slopes. On potentially unstable slopes,

over 50 percent of the trees will be retained. Is there evidence to suggest that 50 percent retention on potentially unstable slopes prevents landslides? We ask that DNR provide documentation of the level of risk associated with partial cutting. We ask that DNR provide the scientific references that demonstrate that cutting 50 percent of trees on potentially unstable slopes will ensure no landslides. [EM16/C15]

Response: Please see NE7 response above.

NE8 *Alternatives 4 and 5 – Mass Wasting*

- In reading the Preliminary Draft E.I.S. I considered implications for evaluating the potential for each of the Alternatives to meet the stated objective to “*ensure no significant risk ... from forest management related mass wasting events*”..... Alternative 4 precludes both timber harvest and road construction not only on unstable slopes but also on potentially unstable slopes. As this option would prevent management-induced alteration of factors that most strongly influence slope stability, I conclude that it is likely to “*ensure no significant risk*” of landsliding from timber harvest. Alternative 5 does not differ much from Alternative 4 in terms of potential impacts on slope stability, and also would be likely to achieve the stated goal. [EM16/C49M]

Response: Comment noted.

NE9 *Risks to Soil Productivity*

- Prefers Alt 5 -The watershed will be vulnerable after it’s been logged because of scraping little to no existing dirt from rock foundation. If it’s logged there’ll be little dirt, earth or material to generate a tree, let alone a forest. In harvesting timber, dirt will be bulldozed, losing the minerals, and soil will be lost. All will end up in Lake Whatcom via erosion from steep terrain with nothing left to slow down existing and changing run-off..... [L5/C2]

Response: Please see response to NE2.

- Prefers Alt 5 - On the steep terrain above Lake Whatcom, reduced to rock, how long will it take to rebuild the watershed? If it were on more suitable ground for logging, I’d support a different alternative. [L5/C3]

Response: Please see response to NE 2.

NE10 *Air Quality – Wildfires and Mercury Release*

- *Mercury and fires* (page 97) – We would like to see a discussion of literature, if any exists, relating to the release of mercury during wildfires. Mercury has been found in relatively high concentrations in small-mouth bass and yellow perch in Lake Whatcom, but the source has not been identified. [L58/C13]

Response: Friedli, et. al. (2001: Mercury in smoke from biomass fires. *Geophysics Research Letter*, 28, 3223-3226) found that mercury is emitted from burning vegetation. They projected that mercury emitted from forest fires and from all biomass burning is an important global source of mercury in the atmosphere. Very little, if any, silvicultural burning is planned for the Lake Whatcom area under any of the alternatives. Historically the area has experienced very few wildfires. Therefore it is not likely that either silvicultural burning or wildfires on state lands in the Lake Whatcom watershed will contribute significantly to mercury levels in Lake Whatcom. DNR will continue to search for literature regarding the release of mercury during wildfires and will include a discussion of additional relevant information in the DEIS.

NE11 *Stand replacement fires and water supply protection*

- ...a publication entitled *Municipal Water Supplies from Forest Watersheds in Oregon: Fact Book and Catalog*, prepared by Adams and Taratoot at OSU...A principal finding of the OSU study is the demonstrated need to protect water supplies from forested watersheds from the disastrous effects from wildfire. Lake Whatcom watershed has a history of stand replacement fires. A discussion of wildfire risk and mitigation completely is absent from the PDEIS Fire Management assessment (Appendix Section M)... Key findings from this report should be incorporated into the PDEIS Water Quality Assessment (Appendix Section E). [L59/C17]

Response: Assessment Report M in Appendix D of the PDEIS discusses wildfire risks and identifies urbanization and increasing public use as the leading risks of wildfire in the area. The Adams and Taratoot document is being reviewed and will be incorporated in DEIS as appropriate.

NE12 *Forestry Is Not Only Factor Affecting Water Quality*

Response: While there is information indicating development impacts to water quality may be a more significant issue in the watershed, this planning process has identified at least five management objectives that relate to protecting and restoring water quality. DNR intends to select a preferred alternative that finds an appropriate balance in meeting all of the landscape objectives. (This response pertains to the following five comments: [L2/C2], [L9/C3], [L30/C6], [L59/C3], [EM5/C2].)

- Prefers Alternative 1 - Given the water quality reports from DOE and DOH that forest management in the watershed has been very good, it appears Lake Whatcom needs most of its protection from people living and playing around the lake. Current management used by DNR along with watershed analysis will more than protect the lake from forestry. [L2/C2]
- Prefers Alternative 1 - Numerous studies and Ecology indicate that inappropriate development poses a larger threat to Lake Whatcom while forestry under current regulations and policies poses little risk to the watershed. [L9/C3]
- Prefers revised alternative leaning toward Alternative 1 - Departments of Ecology and Health letters supported the present regulations as having little impact on water quality in the watershed. Forest management should be the preferred land use. [L30/C6]

- Prefers something like Alternative 1 - To the extent feasible, the PDEIS should highlight water quality problems discovered during the forest management investigations. [L59/C3]
- Prefers Alternative 1 - Mount Baker School District urges the Board of Natural Resources to adopt Alternative 1 as the Lake Whatcom Landscape Plan. Alternative 1 is the only alternative that meets the trust revenue production obligations while providing appropriate environmental protections. The only quality that significantly differentiates the Lake Whatcom watershed from all other DNR-managed lands is the fact that Lake Whatcom serves as a municipal water supply. The November 15, 2001 letter from Megan White of Washington Department of Ecology included in the appendix to the PDEIS indicates quite clearly that standard Forest Practice Rules combined with the current watershed analysis prescriptions are sufficient protection for water quality in Lake Whatcom watershed. The revenue generated by county transfer land in Lake Whatcom watershed allows us to provide programs that make a real difference in children's lives. Don't trade our very real and important programs for environmental restrictions that would have no significant benefit to water quality. [EM5/C2]

NE13 *Improved forestry practices are critical to protecting drinking water quality.* (Comments include suggestions for these improvements.)

Response: Please see Response to NE2. The landscape plan for DNR-managed lands in the Lake Whatcom watershed includes objectives that specifically state that management of those lands will “ensure no significant risk to public health, safety, and resources, and tribal and cultural resources from forest management related mass wasting” and “maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems.” The effectiveness of mitigation measures for protecting streams and wetlands is evaluated for each alternative within the PDEIS. (This response pertains to the following four comments: [L6/C2], [EM12/C1], [EM14c/C22], and [EM16/C4]).

- Prefers Alt 4 - The key to ensuring safe and abundant drinking water is to protect streams, unstable slopes, and wetlands from logging and road construction. All these areas should have buffers at least 200 feet wide where no trees are cut. Where logging is appropriate, employ 200 year or more rotations, retaining 70 percent canopy closure, prohibiting road construction and chemical application to ensure high water quality in drinking water supply for years to come. [L6/C2]
- Lake Whatcom is an essential drinking water resource for the region, and therefore this watershed should not be treated as other watershed might be. ...A letter from the Dept. of Health certifying that current trust land forest practices will not harm water quality is certainly not sufficient. [EM12/C1]
- Improve water quality in the tributaries. [EM14c/C22]
- A forest that has a greater percentage of area hydrologically mature will improve water quality in the lake. [EM16/C4]

NE14 *Water quality – nutrients & sedimentation – Alternative 1 impacts*

- *Water quality* (page 156) – We would like documentation in the DEIS of scientific evidence that was used to determine that there would be no significant adverse impacts to water quality in the Lake Whatcom watershed through existing regulations for Alternative 1. We would like to see an analysis of the expected nutrient loss per unit area for cutting type five buffers. WDFW has documented sedimentation concerns and the resulting negative impacts to rapidly declining native kokanee and cutthroat trout populations to DOE. We can provide you with this information for use in the DEIS. [L58/C26]

Response: The scientific evidence that there would be no significant adverse impacts to water quality through adherence to existing regulation is documented in the cited references associated with the HCP, Forest Practice Rules, and Watershed Analysis. Analysts will consider providing more specific references and citations during development of the DEIS. DNR does not have data available regarding the question of nutrient loss associated with cutting type five stream buffers.

- *Forest practices rules:* Throughout the PDEIS it is optimistically stated that the HCP, the new Forest practice rules and the Watershed Analysis are sufficient. But sufficient for what? The HCP was designed to protect habitat for wildlife such as northern spotted owl, marbled murrelet and several runs of salmonids. Forest practice rules were designed to bring Chinook salmon back from the brink of extinction and Watershed Analysis, while it had reasonable goals, suffered from a systemic lack of scientific rigor (Collins, B.D., G.R. Pess, 1997. Critique of Washington's Watershed Analysis Program.) These rules were simply not designed to protect municipal drinking water reservoirs nor did they maintain a particularly high standard for slope stability. The forest practices rules were designed to reduce sediments in streams rather than in lakes. Sediments that enter a lake remain in the lake. When oxygen levels are low, as happens in Lake Whatcom, phosphorous is released, which in turn feeds potentially toxic algae. Sediments from logging quickly age a lake. Lake Whatcom is the sole source of drinking water for half of Whatcom County and management activities, like road construction or aggressive logging, that generate sediment will have profound, lasting and costly consequences. [EM16/C4]

Response: The Forest Practices Rules are the means by which the State of Washington through the Department of Ecology enforces the U.S. Clean Water Act. The purpose of these rules is to address non-point source pollution from forest management activities. The Clean Water Act includes the protection of municipal water supplies. The HCP meets or exceeds the protection measures of the Forest Practices Rules. While the main emphasis of the HCP is to protect salmonid habitat, it also provides benefits for other water uses including municipal water supplies. The protection of all surface water bodies is a consideration of both the Forest Practice Rules and the HCP. Many practicing scientists from throughout the Pacific Northwest - representing the environmental community as well as forest land owners - helped to develop the Watershed Analysis process. They would disagree that the process lacks scientific rigor, but it is clear that there are a variety of viewpoints. DNR analysts will review the paper cited above.

NE 15 *Forests filter water*

- Leaving the timber structure in place also ensures the continuation of valuable services provided by the forest ecosystem of the Lake Whatcom watershed...Reservoir for the drinking water of Bellingham residents, ...The complex network of the forest ecosystem below ground performs the artificially expensive process of water filtration and treatment free of charge. A diverse array of microorganisms too numerous to be quantified perform the priceless functions of absorbing and breaking down pollutants, storing and cycling nutrients, forming soils, and maintaining soil fertility. Moreover, these microorganisms are directly associated with the slow release of water (arriving in the form of precipitation) from fertile soils that replenishes the Lake Whatcom reservoir at a rate comparable to that of human needs, ensuring an adequate source of water during the dry summer months. It is because of the diversity among these microorganisms that they can colonize and fill specific niches in the forest ecosystem to the extent that they do. In providing pre-reservoir filtration and treatment of water, the species-rich soil communities of microorganisms within the Lake Whatcom watershed save the City of Bellingham considerable costs in water treatment. As part of a benchmarking initiative to identify the best city practices in Ontario, Thunder Bay reported operating costs for water treatment to be US\$72.81 per million liters. Lake Whatcom contains 1,234 billion liters of water; the cost of filtering this quantity based on the Thunder Bay report amounts to nearly \$90 million. Although filtration is still necessary prior to human consumption, the pre-reservoir filtration by microorganisms likely offsets the costs of complete treatment by a significant amount (disregarding the fact that it may later become polluted again from activities and events both on and around the lake). [EM6/C4]

Response: As explained in PDEIS section 4.1.1.3, most of the excess water that is available for streamflow will be transported to stream channels by sub-surface flow. Therefore the benefits of soil filtration will be maintained under managed conditions.

Soil fauna (mainly various worms and arthropods) are important regulators of nutrient cycling and soil water dynamics (Shaw, C.H., Lundkvist, H., Moldenke, A., and Boyle, J.R. 1991. The relationships of soil fauna to long-term forest productivity in temperate and boreal ecosystems: processes and research strategies. Pp. 39-77 in W.J. Dyck and C.A. Mees (Ed.). Long-term Field Trials to Assess Environmental Impacts of Harvesting. Proceedings, IEA/BE T6/A6 Workshop, Florida, USA, February 1990. IEA/BE T6/A6 Report No. 5. Forest Research Institute, Rotorua, New Zealand, FRI Bulletin No. 161.). The most important soil fauna in northern coniferous forests are Acari (mites) and Enchytraeida (potworms), but over 250 species per m² are regularly collected from forest litter and soil (Lattin, J.D. 1993. Arthropod Diversity and Conservation in Old-Growth Northwest Forests. Amer. Zool., 33:378-587). Silvicultural practices such as timber harvest, burning, and fertilization can affect soil fauna directly and indirectly by altering habitat. Management activities cause changes in soil chemistry, organic matter, water capacity, and coarse woody debris. However, at this point, there is little broadly applicable information on the relationship between soil fauna activities and long-term forest productivity.

Soil fauna are protected by current forest practice reserve areas and woody debris retention requirements. DNR procedure 14-004-070 describes the way a DNR land manager could obtain help from a scientist to develop strategy options for Forest Floor Arthropods and Mollusk Communities (pg 19 of 31). Marra and Edmonds (1998; Coarse Woody Debris Effects on Soil Invertebrates. Environmental Entomology. Vol 27, no. 5) suggest that “those approaches that

adapt management techniques to site specific factors are likely to be most successful in preventing changes in soil conditions that may be deleterious to soil organisms. For example, on interior sites and south facing slopes prone to extremes in temperature and moisture, dispersed green tree retention may help create a more moderate microclimate on the forest floor. Coastal sites with more moderate climate, but high annual precipitation may benefit more by aggregated retention system that aims at retaining soil volume and structural diversity in erosion prone areas.”

NE16 *Use pollution laws and standards*

- The federal “Molloy” (Montana) decision re TMDLs, which requires a TMDL process to be conducted on a 303(d)-listed waterbody before any additional permits and damaging activities may proceed, should be the standard honored by DNR. DNR must consider the results of the TMDL study (i.e., what it will take to restore the lake to conditions that meet Clean Water Act standards) as part of its environmental analysis before proceeding with activities.

[EM14b/C10]

- Wait on all activity until State Department of Ecology is done with its current TMDL study before proceeding on any earth disturbances within the watershed. [EM14/C19]

Response: At the present time, the Forest Practice Rules are the starting point for implementing TMDLs where forest management is the dominant land use associated with 303(d)-listed waters. Under Schedule M-2 Clean Water Act (CWA) Section 303 Assurances, EPA and Department of Ecology “will not add new TMDL CWA requirements to current or future 303(d)-listed water bodies subject to the FPB [Forest Practices Board] regulations prior to 2009.” During this time the rules are subject to adaptive management.

- Follow the Washington State laws regarding non-pollution of state waters for turbidity, sedimentation, phosphorus and dissolved oxygen within the watershed boundaries.

[EM14c/C21]

Response: All the alternatives require DNR to follow state laws.

NE17 *Hydrological conditions not conducive to logging (or clearcutting)*

- Prefers Alt 5 - The geological and hydrological condition of the Whatcom watershed are such that logging on this land will result in serious erosion and possible landslides due to the unstable slopes resulting in the fouling of our drinking water sources, destruction of salmon habitat and serious damage to private and public property. [L46/C2]

Response: Preference noted. The geologic and hydrologic conditions of the Lake Whatcom watershed are the basis for the Watershed Analysis prescription and the application of the Forest Practices Rules. Unstable slopes are off limits for timber harvest under each of the alternatives. Please see response to NE2.

- The benefits of mature forest hydrology are important to water quality and soil stability....I’ve read various other documents in which the science points to eliminating clear-cutting and

having a diverse forest with varied ages of timber, along with well-protected streams and wetlands.... Alternative 4....we will then accomplish a sustainable prudent harvest plan.
[L53/C2]

Response: All of the effects of the proposal on water quality and soil stability are compared with mature forest conditions.

NE18 *Peak flows*

- *Peak flows* (page 102) – We would like to see a discussion of what proportion of roads to watershed land base is necessary to cause significant changes in peak flows. We would also like related information included in the DEIS that discusses the proportion of roads to land base on trust lands in Lake Whatcom and clarification of data and/or studies used to support the statement regarding peak flows on p. 102. [L58/C15]

Response: See the cited reference, Harr et al., 1975, for a discussion on this topic. We will seek to provide additional information in the DEIS regarding the proportion of roads to the trust land base.

- *Water quantity* (page 158) – We would like documentation in the DEIS of scientific evidence that was used to determine that there would be no significant adverse impacts to water quantity in the Lake Whatcom watershed through existing regulations for Alternative 1. Rain-on-snow events can also occur on elevations lower than 1,780 feet, even though they are not technically in the rain-on-snow zone. Combined with the highly erodible soils and underlying rock, steep topography, and higher precipitation in the southern portion of the watershed (relative to the northern portion), we think a potential exists for significant adverse impacts to natural resources. [L58/C27]

Response: The procedures and calculations for determining the influences on peak flows caused by rain-on-snow events are documented in the cited reference, WDNR, 1997a. Rain-on-snow processes can occur at any elevation. Therefore all elevations were included in the analysis.

- There is at present no long-term understanding of the lake's natural background levels, without the flushing influence of the diversion. True "natural" state unknown. ESA may require removal of the diversion, so DNR's EIS must include modeling without the diversion in place. [EM14b/C9]

Response: The amount of flushing that may occur depends on the amount of water introduced by the diversion and the amount of use. We have some idea of how much less water would be introduced if the diversion were removed. However, what the future use will be is not known. To conduct an analysis on future conditions would be speculative and therefore should not be included in the PDEIS [WAC 197-11-060(4)(a)].

NE19 *Complexity of determining "negative" impact of runoff from harvest*

- The impact of runoff from harvest units depends upon many facts. (*see attachment provided with the letter.*) [L61/C4]

Response: We agree that the influences of timber harvest on runoff depends on many factors, and those of significance have been considered in the PDEIS.

NE20 *Managed forests provide more water for longer time*

- Watershed needs and UW study – shown that a managed stand provides more water [than old growth] for a longer period of time because water is let through the tree canopy so it can enter the ground and eventually seep into the streams that feed the reservoir. [EM8/C4]

Response: This concept is explained in PDEIS section 4.1.1.3.

NE21 *Restore old forest hydrological regime.*

- *Maintaining Forest Hydrologic Regimes* – To return the forest hydrologic regime to within the range of natural variability for each sub-basin (assuming mature forest covered much of the landscape in pre-settlement times), NCAS supports, at a minimum, the retention of older forests as outlined in Alternative 3. [EM13/C8]

Response: Your preference is noted.

NE22 *Questioning the PDEIS analysis of hydrologic maturity*

- ***Hydrologic maturity:*** As discussed in the document, it takes approximately 40 years after a timber harvest for the hydrologic function of a stand to fully recover. During this recovery phase, water yield is increased and peak flow during storm events can be much higher. These increased flows increase erosion and sediment delivery to the streams, and increase the likelihood of slope failures and debris torrents. As a general rule, areas that are hydrologically immature contribute to eutrophication of the lake, degraded water quality for human use and degraded aquatic habitat. ...The PDEIS fails to provide an analysis of the current area of hydrologically immature land in the Lake Whatcom watershed nor does the PDEIS present an analysis of how this is likely to change under the proposed alternative. Fortunately, it is possible to derive this information from the document... This simple analysis makes it quite clear that the DNR managed lands represent the only potential source of inputs to the lake from hydrologically mature lands. ... From my Table 1, it is apparent that full implementation of Alternatives 1 or 2 would substantially increase the coverage of hydrologically immature land relative to current conditions. Alternative 3 would result in a reduction by about 1 percent and Alternatives 4 and 5 would each result in a reduction of about 7 percent. If thinned stands less than 40 years of age are included in these calculations (Table 2) then the percentage of the watershed in hydrologically immature stands increases even more.

This relatively simple analysis illustrates the precarious current state of the Lake Whatcom watershed and the need for restoration efforts. Clearly, the private non-forest lands are the biggest concern. However, this analysis illustrates that the initiation of timber harvest activities under Alternatives 1 or 2 could result in substantial additional degradation of a watershed that is already showing many warning signs. Restoration of the DNR lands and maintenance of

these lands in continuous older forest stands offers the best hope of maintaining water quality. At some point in the future, if the quality of runoff from the residential lands can be improved, then it might be possible to allow some limited timber harvesting on DNR lands. This probably will not occur for several decades. In the meantime, inputs to the lake from restored DNR lands offers the best hope of offsetting the pollution entering the lake from residential and commercial forestlands. (see tables and the details of discussion in the full comment on the website, www.wa.gov/dnr). [EM27/C3]

Response: All the alternatives are subject to the prescriptions from Watershed Analysis and to the HCP strategies involving hydrologic maturity. Both require that a certain level of hydrologic maturity be maintained so that sediment delivery and slope failures are not significantly increased. As explained in the PDEIS, the most likely connection between the proposal and eutrophication would be the introduction into the lake of phosphorus attached to sediment if sediment were significantly increased. The main emphasis of the mitigating measures is to prevent this from happening. The presence of young timber stands does not automatically mean an increase in nutrient loading. In fact it is possible that nutrient uptake by vegetation may increase to some extent.

NE23 *Chemical applications and water quality*

- The primary concern of the Lake Whatcom Management Committee is protection of the Lake's water quality especially as that pertains to the municipal water supply of Bellingham and Water District Number 10. In consideration of that focus, the LWMC requests that the Draft EIS include a comparison of the water quality impacts of each alternative, not only the sediment load contributions but also the effects of chemical application. In addition, other activities with water quality impacts identified during the development of the alternatives should be included in the comparison. [EM9/C1]

Response: Alternatives 1 and 2 allow aerial application of chemicals only as a last resort. All the other alternatives prohibit aerial application. In addition, the use of chemicals is a third priority after no action and non-chemical methods. Therefore if chemicals were to be used at all, ground application methods would most likely be used. Ground application is subject to EPA regulations that prohibit contamination of surface water. Consequently, significant detrimental impacts on the water supply is very unlikely and, based on existing information, does not require additional discussion within the DEIS. (See RCW 43.21C.031.)

NE24 *Cost benefit analysis of each alternative's impact on water quality*

- This comparison should be presented in the form of a benefit/cost analysis of each alternative's impact on water quality. The benefit/cost analysis should take into account additional costs for maintaining the drinking water supply, including but not necessarily limited to costs associated with treatment at the water treatment plant. This will aid the Lake Whatcom Management Committee [to] make a recommendation for a preferred alternative. [EM9/C2]

Response: An EIS does not need to have a cost/benefit analysis in the document itself (WAC 197-11-450). A cost/benefit type of analysis will be presented to the ultimate decision maker, the

Board of Natural Resources, separately from the environmental analysis. Please also see response to EP7.

NE25 *Indemnification bonding*

- Provide bonding to indemnify City of Bellingham's cost to immediately replace or treat the clean water supply provided by the watershed if DNR actions cause severe drinking water pollution [EM14/C20]

Response: Indemnification bonding is not required in E2SSB 6731, nor is it a part of watershed planning. Moreover, the state is self-insured.

NE26 *Letters from DOE and DOH – questioning DNR's interpretation and senders' credentials*

- "In the case of Lake Whatcom the limiting nutrient is phosphorus...Phosphorus enters a lake either through rain runoff or by attaching to soil particles that are eroded into the lake." When mass-wasting occurs, or erosion from roads or poor forest practices occurs, forestlands are a significant source of soil particles entering the lake. Preventing sediments from entering Lake Whatcom is essential to its long-term health. Only Alternatives 4 and 5 will lead to that level of protection. The letter from DOH is signed by a secretary and lists a number of activities with adverse impacts. We ask that you provide the qualifications of the secretary who wrote the letter, particularly her training and experience evaluating water quality and risks from forest practices. [EM16/C40]

Response: The letter from the State Department of Health, dated November 27, 2001, was signed by Secretary of Health, Mary Selecky, the top official for that agency.

- One of those listed activities under Tier 2 is timber management. DOH states that assessing risk is the job of the City of Bellingham and Whatcom County Water District Number 10. The DOH letter contains errors. It states that the "water treatment facilities located on Lake Whatcom have been designed and constructed in response to activities historically associated with the state forest lands." Bellingham's water treatment plant is not located on Lake Whatcom, but WD#10 has a treatment plant near the lake in Sudden Valley. It is not accurate to say that either one was designed or constructed in response to forest management activities. ...The DOH letter says, "very few of the potential contaminant sources identified...could originate from...DNR activities." True, yet large amounts of one contaminant, sediment, are sufficient to have a significant impact on drinking water quality. The cumulative effect of logging in the watershed, particularly under Alternative 1, is likely to be the delivery of large amounts of sediment through erosion and through mass wasting....The DOH letter goes on to say that typically, practices that protect the environment usually protect drinking water sources. There are any number of practices that protect the environment that do not protect drinking water – some will improve drinking water, some will be neutral, some will not protect drinking water. We challenge the DOH and DNR to back that up with proof. The DOH letter also says that "DNR should consider implementing the recommendations of that (1999) committee." ...We join DOH in suggesting that DNR, at a minimum, follow the recommendations of the

1999 Lake Whatcom committee and we have enclosed them for your consideration. (See website for additional details, www.wa.gov/dnr.) [EM16/C41]

Response: DOH is the delegated agency for the Safe Drinking Water Act, and as such DNR defers to their expertise in this area. We respectfully disagree with the statement that the cumulative effect of logging on DNR-managed lands is “likely to be the delivery of large amounts of sediment through erosion and through mass wasting” due to the fact that Forests and Fish rules, Forest Practices Act requirements and other existing requirements would remain in place to prevent or minimize sedimentation. These requirements have been agreed upon by DNR, DOE, and WDFW as adequately protecting water quality.

- Throughout the PDEIS DNR cites two letters, from the Department of Ecology and the Department of Health, as evidence that Alternative 1 is adequate. While the original letter from Commissioner Sutherland is not included, the original question appears to be repeated in the DOE letter. That question does not refer to Alternative 1, but to Alternative 2: what should be done on forestlands beyond “the Forest Practice Rules and the Lake Whatcom Watershed Analysis; the DNR’s Forest Resource Plan and HCP for state trust lands, and the additional requirements set forth in E2SSB 6731.” Drinking water and public safety are of the highest importance. It is our expectation that decisions regarding the impacts of forest practices to slopes above homes and above a drinking water reservoir be made based on science, rather than conjecture.

Please read the letters more carefully and consider whether they constitute proof of water quality, particularly for Alternative 1, as you state under Water Quality in the Executive Summary. We believe that they merely offer opinion, and that the opinion offered up reflects on Alternative 2, not Alternative 1. We also note that the letter from the DOE is signed by an engineer, not a limnologist. We ask that you provide the qualifications of the engineer who wrote the letter, particularly her training and experience evaluating water quality and risks from forest practices. We ask that, if you continue to use these letters as “proof,” that you provide the original letter so the reader understands what questions the letters are attempting to answer.

[EM16/C39]

Response: The DNR is required to follow all rules and laws. The PDEIS is based on science as indicated by the referencing of scientific papers and studies. The description of water quality under the affected environment is based on several studies conducted on Lake Whatcom. One such study to address the cumulative effects of logging in the watershed was the Lake Whatcom Watershed Analysis completed in 1997. The approach to protect salmon and other wildlife in the DNR Habitat Conservation Plan riparian strategies is designed to minimize harmful effects from sedimentation due to logging.

The letter from DOE dated November 15, 2001 was signed by the DOE’s water quality program manager, who has the resources of the program, including several limnologists, available to her.

The original letters (dated November 8, 2001) from Commissioner of Public Lands Doug Sutherland will be provided in the DEIS. The letters ask the Department of Ecology and the Department of Health to clarify in writing their understanding of “pollution sources identified in

the Source Water Protection Plan for Lake Whatcom; which of the pollution problems, and their approximated relative share, originate on state forest land; and what additional water quality protection measures, if any DNR should consider beyond those already set forth in the Forest Practices Rules and the Lake Whatcom Watershed Analysis, the DNR Forest Resource Plan and HCP for state trust lands, and the additional requirements set forth in E2SSB 6731.”

NE27 *Stream and wetland buffers*

- Streams in the watershed, as well as all wetlands, should be given no-cut tree buffers. It is these waterways and wetlands that do the priceless work of storing and filtering water, and metering out water during sudden storms. These areas are also especially critical for wildlife. The department can and should further protect water quality by building no new roads, making no new clearcuts (only partial cuts), and applying no chemicals. [EM19/C2]
- Highest protective buffers allowed in any of the alternatives should be given wetlands of any size. This buffer in trees and more trees for wind buffers. [L60b/C4]

Response: All the alternatives require buffers for the protection of streams and wetlands to varying degrees. Mitigation of the impacts from roads and timber harvest are considered within the PDEIS. In any Alternative, the use of chemicals is restricted by federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision. Decisions concerning the building of new roads and selection of harvest methods will depend on the alternative selected.

NE28 *Upland Vegetation – general forest ecology perspective*

- *Landscape definition* – We request that the DEIS evaluate and compare vegetative, wildlife, and fisheries impacts with respect to the entire watershed, adjacent landscapes, and the larger scale landscape perspective. WDFW previously submitted this comment....Many species, such as bears and marbled murrelets, typically have home ranges that are larger than scale used for the landscape analysis in the PDEIS. In addition, a relatively high-relief, mostly forested migration corridor extends from Bellingham/Chuckanut Bay to Mt. Baker....This is one of the few, if only, such mountainous areas that extends to the marine coast on the east side of Puget Sound, and offers a unique opportunity to provide and support unique wildlife and wildlife habitat so close to developing urban areas. [L58/C2]

Response: Placing the Lake Whatcom area in the context of the larger regional landscape is a reasonable and productive endeavor, and will be addressed in the DEIS. The issue of larger landscapes and populations has been addressed in the DNR’s HCP and the associated EIS for that plan. Analyses for the HCP established large planning areas and addressed current and potential threatened and endangered species in a larger landscape context. Information from these analyses

will be used when considering impacts of the various alternatives to wildlife and wildlife habitat in the Lake Whatcom planning area. Habitat modeling has been, and will continue to be, restricted to state-managed lands, due to limitations of time and reasonably available information. However, further analysis will likely include consideration of how adjacent lands may be impacted and/or may affect DNR lands. In the DEIS, the DNR will consider additional *specific* (vs. general or speculative) information or studies that the Washington Department of Fish and Wildlife (WDFW) or others may have regarding potential impacts that any of the alternatives may have on wildlife or wildlife habitat across a broader landscape. The DNR is not aware of a migration corridor within the planning area that exists for a specific species. Further consultation will occur with WDFW in an attempt to acquire more complete information about this issue. If a well-established migration route is specifically identified, DNR will consider potential impacts of its activities under each alternative.

- *Biodiversity* - Species diversity within the Lake Whatcom watershed directly translates into genetic diversity, which in turn provides value in the form of information and potential knowledge. [Example given re: silk from the golden orb weaver spider (*Nephila clavipes*).] As the field of biomimicry expands, reserves of genetic diversity will become increasingly important as we develop new technology to deal with the problems we continue to face as a society. [EM6/C5]

Response: The DNR concurs that biological and genetic diversity are important. However, the context of the lands within the Lake Whatcom watershed makes them an unlikely candidate for a biological or genetic “reserve.” Due to current forest land management and development under *mixed ownerships* (including the designation of DNR lands within the watershed as “matrix lands” or those lands envisioned by the Federal Ecosystem Management Assessment Team where most timber harvest would occur), this area does not present the best opportunity for setting up such a reserve. On the larger landscape scale, there are other lands that are better suited for this purpose. Some have been designated as such (on DNR lands these include Natural Resources Conservation Areas, Natural Area Preserves, as well as northern spotted owl Nesting/Roosting/Foraging habitat). If ownership or management of these lands were to be transferred to something like a park or otherwise “off-base,” then this area might provide a unique opportunity for low-elevation forests. Some of the alternatives described in the PDEIS also have the potential to encourage biological diversity within the watershed.

NE29 *Old forest condition desirable*

- Alternative 4 allows the potential for an old forest, the fullest protection of streams and as you state in your PDEIS, will further eliminate the risk of landslides. [L40/C2]

Response: DNR concurs with your assessment of alternative 4.

- ... The benefits of a mature forest, with sufficient buffer protection and no clear-cutting or chemical spraying are worth their weight in gold. [L43/C8]

Response: Mature forest is all the more valuable for being rare on the landscape. Preference noted. However, the inherent “gold” property of a no chemical spraying restriction is not

universally accepted. Please see response under **NE36**, forest health, insects and disease, and chemical spraying below. Forest chemicals are important tools for pest control and tree growth enhancement. Non-target effects are avoided and safety is maintained through regulation of chemical use. Such regulations include federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision.

- Favors Alt 5 - The importance of old growth forests and their role in carbon sequestration in the watershed should not be overlooked. [L43/C8]

Response: Carbon sequestration is an important forest function and was included as part of the analysis in the PDEIS.

- *Prefers Alt 3, 4 or 5.* The PDEIS lists species that have been extirpated from the planning area, including northern spotted owl, marbled murrelet, marten, elk, fisher. It is conceivable that some of those species will, in time, return to the Lake Whatcom watershed if conditions improve for wildlife. Additionally, a number of wildlife species of interest, such as northern goshawk, osprey and vaux's swift can be expected to return to the watershed with improved mature forest conditions. [EM16/C32a]

Response: Comment noted.

- *Prefers Alt. 4.* As you are aware, the "old growth" trees are very beneficial in keeping a portion of the carbon dioxide from reaching the atmosphere. Trees in general, but specifically the larger ones, are extremely beneficial to the watershed which eventually reaches Lake Whatcom, as is any change to the ground area and root systems in general. I am also concerned about the aesthetics of the Lake Whatcom area as well as that of all forest lands publicly or privately owned. I am opposed to any "clear cutting," whatsoever, unless it is on specifically grown tree farms. I also believe that any logging process must not include "old growth" trees (defined as trees older than 35 years). In a watershed area, which is a major factor in protecting the water flowing into a reservoir, no logging operations other than limited thinning should be permitted. If thinning is done, it should be done for a specific purpose (such as a wildfire deterrent or to allow the larger trees more growing space; I know the Bush Administration believes fires are fine for the management of forests, however, they may wish to rethink that position after the tragedies which occurred this summer) and if allowed, the thinning should be done by helicopter to minimize the impact on the surrounding forest areas. [EM23/C2]

Response: Your preference for alternative 4 and concerns about clearcutting, thinning and other forest management practices within watersheds are noted. Sequestration of carbon is one of the forest functions that DNR staff considers in designing management activities. Helicopter logging is an option that is viable in some circumstances. DNR's definition of "old growth" forest describes stands that typically contain trees older than 200 years, that also have structural elements such as

snags, down wood and multi-layered canopy (please see the Final Habitat Conservation Plan, DNR, 1977. P. 10, Glossary).

- *Prefers turning entire area into a park* – The majority of the land, which you address in your report, is “virgin” territory with a large portion in “old growth” trees. This needs to be protected for future generations to come. Where in Northwest Washington can I go to see 300+ year old trees? The various states, along with the federal government, have made mistakes in the past by letting “old growth” trees be converted into lumber. I hope a state as progressive as Washington does not make similar mistakes in the future. I appreciate that by protecting these lands from aggressive logging programs it will have a near term negative impact on the economy in certain specific areas, however, the long term benefits far outweigh this. At the public meeting, a representative for the logging industry indicated that lumber was needed by the United States (he did not mention the amount that the US actually exports) and if we did not obtain it locally, we would have to import lumber from third world countries and their people would suffer. That is a decision for the third world countries to make. If they wish to sell lumber on the open market, and the US declines to purchase it, another country will. I do not believe this argument holds itself up to even the slightest amount of scrutiny. [EM23/C9]

Response: Old growth forest is increasingly rare in Washington, and it is also proportionally rare in the Lake Whatcom watershed, where the majority of the forestland is not “virgin” or “old growth.” According to DNR records, less than four percent of the planning unit consists of stands of trees that are more than 100 years old, and less than one percent of that area has trees between 121 and 200 years old. These are stands that are just beginning to have the structure and functions associated with “old growth” or mature forest stands. DNR appreciates the biological, cultural and aesthetic significance of the remaining old growth stands within the planning unit, and recognizes their importance to the public.

Much of the softwood lumber consumed in the United States is already sourced from other first world countries (e.g., Canada). Increasing trade liberalization has increased economic interdependence among most countries and especially between their forest products and construction sectors. Also, while the timber harvest from DNR-managed lands in the Lake Whatcom watershed may appear large, it is a very small volume in the context of the softwood lumber trade and therefore would have little discernible impact on global timber supply or demand.

- The rarest forest cover type in all of western Washington is low elevation old growth. The DNR lands in the Lake Whatcom watershed offer an opportunity that is unique in the state. Western Whatcom County is the only place in the state where there is the potential for a more or less unbroken coverage of forest from the Cascades down to Puget Sound. Elsewhere in the state, low elevation forests have been converted to urban, suburban and agricultural uses. In these areas, the high elevation forests of the Cascades are separated from Puget Sound by many tens of miles of non-forested lands. The basic structure for this forest corridor from the North Cascades to the sea already exists in western Whatcom County. The low elevation forests that currently exist in this corridor support flora and fauna that do not exist in higher elevation forests. What is lacking from this corridor is the presence of significant blocks of older forests. These low elevation older forests, close to Puget Sound, would provide habitat for the Marbled Murrelet and a variety of other species of flora and fauna that are not found in younger forests.

The DNR lands in the Lake Whatcom watershed currently contain only a small amount of older forest. However, most of the area includes forest stands >60 years of age. Given sufficient time, these stands could form an important link in a network of old growth reserves in this North Cascade to the Sea Corridor. Other important links in this network might include Larrabee State Park and the Arlecho Creek old-growth stand. [EM27/C5]

Response: As stated on page 117 of the PDEIS, the Lake Whatcom planning area is relatively isolated from other contiguous blocks of forested land. The most likely potential links to provide a forested “corridor” exist on a narrow band of private lands to the northeast (toward the confluence of the North and South Forks of the Nooksack River) and on an even narrower band of private lands to the east (south of Acme, over Blue Mountain, and to the Twin Sisters). Otherwise, any connectivity to the North Cascades has been interrupted primarily by agricultural development. There is also almost no potential for forested connectivity to Bellingham or Chuckanut Bay, due to residential development and/or road development. Nevertheless, the importance of low-elevation old-growth forest is acknowledged, and will be considered in the Draft EIS.

NE30 *Relationship between clearcutting and forest duff.*

- ...Clearcutting destroys the forest duff that has been hundreds of years in the making [L43/C4]

Response: The forest duff or litter layer is continually being decomposed and replenished by dead leaves and twigs falling out of the canopy. It forms wherever there is vegetative cover, is chewed and shredded into organic soil materials by many of the invertebrates that inhabit the forest floor, and has a relatively short “lifespan.” You may be thinking instead of the “A horizon” of the soil, where organic materials (from the decomposed duff) and mineral soil materials mix. The organic materials in the A horizon can be compromised or even destroyed by a very hot fire, landslide, or erosion due to excessive soil disturbance (as from a poorly conducted timber sale). Clearcutting does not necessarily harm the A horizon more than other harvesting methods. The extent of damage to soils during harvesting operations depends on many factors, including the soil type and how vulnerable it is to compaction and erosion, how well mixed the organic and mineral components of the soil are, how steep the slope of the timber sale is, the yarding techniques used, use and type of ground-based equipment, and the season in which logging occurs. Protecting the A horizon, which is the “nutrient bank” of the soil, is one of the most important challenges in forest management. DNR forest managers know that loss of soil nutrients can seriously impede forest regeneration, and once lost, these nutrients can be very slow to return to the soil profile and build in protection through timber sale design and operations requirements.

NE31 *Down log component*

- *Down wood* (page 108) – Down wood can also function as nurse logs for other tree and plant species. [L58/C17]

Response: Yes, this is an important function of down wood.

NE32 *Early Seral Stage Forests*

- *Early seral stage stands* (page 159) – We disagree with your characterization of the importance of early seral forests. Early seral forest caused by logging is not the same as early seral forest caused by natural disturbance (Franklin et al. 2000). Furthermore, early seral forest due to logging is not in shortage in the landscape, and species associated with early seral plantation forests are not endangered. It is true that pole and closed canopy managed stands provide the least diversity of any forest development stage. Impact to wildlife can be mitigated by employing variable-density thinning techniques. These techniques put forest development on an alternative pathway that avoids the biodiversity bottleneck associated with managed stands in the 40-70 year age class (Carey et al. 1996). [L58/C28]

Response: Perhaps you misunderstood the discussion of early seral stage stands on page 159. DNR concurs with your statements.

NE33 *Older second-growth and mushrooms*

- ...members of Northwest Mushroomers Association are especially concerned that robust stands of older second growth be retained on these public watershed lands. Older second-growth forests have superb uses for mushroom hunting and collecting. Many of the most prized mushrooms such as chanterelles and matsutake are found in the second growth in the watershed, and are forest mushrooms wiped out by a clearcutting regime. [EM19/C3]

Response: Your concern about retaining mushroom habitat in older stands is noted. Some mushroom species have important mycorrhizal associations with tree species, for which they are also valued. Please see section **NE43** below, for a discussion of mushroom management techniques in the context of special forest products.

NE34 *Analysis of Biological diversity*

- The PDEIS correctly points out that the highest levels of biological diversity can be found in landscapes that contain forest stands that span a wide range of ages. This would include the full range from recently harvested stands to old growth. Although this vastly oversimplifies a very complicated story, this is essentially correct. In comparing the various alternatives, they argue that Alternatives 1 and 2 will maintain the highest levels of biological diversity because they will restore and preserve some older stands and also maintain significant areas in early seral stages through continuous timber harvesting. They then argue that Alternative 3, 4 and 5 will result in decreased levels of biological diversity because they fail to maintain any significant amounts of younger stands. This is an absolutely absurd argument. It ignores the obvious fact that timber harvesting on private lands will continue to provide an endless supply of recent clearcuts and young conifer stands in the Lake Whatcom watershed, the surrounding lands and throughout the rest of western Washington as well. [EM27/C4]

Response: We will address this issue more thoroughly in the DEIS and consider how to characterize potential outcomes of other landowners' future management choices and the potential effects on biodiversity in the Lake Whatcom watershed. Though it seems reasonable to expect that private landowners will continue to harvest their timber and establish replacement stands, DNR analyzed the PDEIS alternatives based on the lands it actually manages.

NE35 *Protection of wetlands, riparian areas and aquatic resources*

- *Protection of wetlands of all sizes* – Given the ecological and hydrologic value of wetlands (as identified in the PDEIS itself on p. 109), and the seasonal low flow conditions in many of the tributaries, North Cascades Audubon Society supports protection of all wetlands in the planning area commensurate with that provided in Alternatives 3-5 (with respect to roads and timber harvest). [EM13/C6]

Response: North Cascades Audubon Society's preference for the degree of wetland protection afforded by alternatives 3-5 is noted.

- *Preservation of riparian forests along all streams* - Riparian forests play a large role in regulating environmental conditions along streams. For example, Large Woody Debris (LWD) is an important feature for all riparian areas. One benefit of LWD, especially in headwater streams, is the storage and regulation of sediment movement (Page 120). LWD also moderates stream energy, stabilizes soils, and provides habitat for dozens of riparian dependent species. NCAS supports strategies for streams and riparian areas that protect riparian forests along all streams commensurate with the protections provided in Alternatives 3-5. These measures are consistent with the low-risk proposal submitted to the Forest Practices Board to restore salmon habitat and protect water quality in Washington's forest environment (Washington Environmental Council & National Audubon Society (1999)). [EM13/C7]

Response: The NCAS's preference for riparian forest protection such as that provided by alternatives 3-5 is noted.

- Favors Alt 5 - The larger the buffers on wetlands, streams, and unstable areas the better..... [L45/C2]

Response: Preference noted.

- *Type 5 stream buffers* (page 199) – The size of the type 5 stream buffers should be mentioned in the text. [L58/C33]

Response: Suggestion noted. The size of the type 5 stream buffers is specified in section 3.2 Description of the Alternatives.

- Inclusion of BMPs (Best Management Practices) from Washington Fish and Wildlife sources including a 1997 document with 1,500 references to habitat and stream buffers. I.e., use science to drive the logging buffers. [EM14c/C10]

Response: comment noted.

NE36 *Forest Health – Insects and disease, chemical spraying*

- We are having infestations in some national forests...at epidemic proportions. This could happen in this watershed... Hemlock looper...now around Baker Lake. Another pest is Douglas fir bark beetle. The control for this is to remove the infected trees. Under options 2-5 this may not be possible. [EM8/C8]

Response: The hemlock looper and Douglas-fir beetle are native insects that are generally associated with unmanaged, older forests. While “unrestricted” management will not eliminate these insects and their impacts, it provides options for reducing risk and responding if damage does occur.

- Removal of infected trees helps the stands and adds revenue. Some is needed for the forest floor, but how much? [EM8/C9]

Response: Forest Practices Law established minimum amounts of dead trees and woody debris as a balance of protection of natural resources and a viable timber industry. DNR’s HCP provides additional protection of natural resources along with certainty, stability and flexibility for the trusts and wildlife. The direct connection between specific additional amounts of dead trees and woody debris and long-term forest productivity is not known.

- *Forest health* (page 109) – Please provide more information on the principles by which DNR develops its forest health management guidelines, e.g., are forest health practices tailored to economics, environmental health, or both? [EM58/C18]

Response: Decisions about tolerance to insects and disease are guided by state law 17.15 which directs DNR to follow an Integrated Pest Management strategy and by DNR policy (No. 9) that emphasizes reducing or preventing significant forest resource losses to trust assets. In practice, land managers generally seek to employ strategies that ensure high tree vigor (which also contributes to rapid tree growth). Some such strategies are codified in the Forestry Handbook. Professional foresters recognize and respond to root diseases and other organisms that reduce productivity, and seek to avoid or alter stand conditions that are vulnerable to insect and disease damage. Specialized assistance from a Forest Entomologist or Forest Pathologist is available to foresters. Forest Health improvement efforts are part of nearly every stand entry.

- The use of pesticides and insecticides kill disease and insects that are native to a forest and are part of the natural process. Both insects and disease create microhabitats for other animals and create spaces for more plants and trees to grow. Although the chance of fire may increase by allowing the forest to follow its natural process, fires are also a part of the forest’s natural process. [EM26/C2]

Response: Yes. Forest insects and disease-causing organisms are part of healthy forest ecosystems and support important processes such as nutrient cycling and habitat creation. Forest managers seek to balance general ecosystem processes with landowner objectives (trust income, habitat, water quality). Excellent forest management generally improves tree resistance and resilience to pests, so ecosystem processes can function, yet landowner objectives can be met.

- ... The benefits of a mature forest, with sufficient buffer protection and no clear-cutting or chemical spraying are worth their weight in gold. [L43/C8]

Response: The inherent “gold” property of a no chemical spraying restriction is not universally accepted. Forest chemicals are important tools for pest control and tree growth enhancement. Non-target effects are avoided and safety is maintained through regulation of chemical use. Such regulations include federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides, and minimum buffer sizes.

NE37 *Animal and bird habitat availability*

- Alt. 4 would help maintain our fish and wildlife populations which are so important for a healthy ecosystem. [L33/C2]
- *Wildlife and wildlife habitat* (page 112) – Limiting analysis of wildlife and wildlife habitat to DNR-managed lands only in the Lake Whatcom watershed does not adequately address actual impacts across the landscape. This document states that some species benefit from the mosaic of open areas and young forest habitats that result from conventional timber harvesting, and species diversity increases. However, this type of landscape is much more common now than it was historically, and the species that use these habitats have greatly increased in number. Conversely, old forest habitats have been greatly reduced, and much of what remains is badly fragmented. The species that rely on these habitats are thus much more likely to be threatened or endangered. These are the species in need of pro-active management to protect their remaining habitats and foster the regeneration of more suitable habitat. Creation of more open area/young forest habitat, particularly at the expense of mature and old forests, will likely decrease wildlife diversity over the wider landscape, as well as harm the future viability of threatened and endangered species. We recommend that the analysis in the DEIS include discussion of this larger landscape context. [L58/C19]

Response: The issue of larger landscapes and populations has been addressed in the DNR’s HCP and the associated EIS for that plan. Analyses for the HCP established large planning areas and addressed current and potential threatened and endangered species in a larger landscape context. Information from these analyses will be used when considering impacts of the various alternatives to wildlife and wildlife habitat in the Lake Whatcom planning area. Habitat modeling has been, and will continue to be, restricted to state-managed lands, due to limitations of time and reasonably available information. However, further analysis will likely include consideration of how adjacent lands may be impacted and/or may affect DNR lands. In the DEIS, the DNR will consider additional *specific* (vs. general or speculative) information or studies that the Washington Department of Fish and Wildlife (WDFW) or others may have regarding potential impacts that any of the alternatives may have on wildlife or wildlife habitat across a broader landscape.

- *Correction: Common loon* (page 113) – The common loon should be listed as a State Candidate (SC) species. [L58/C20]

Response: According to the WDFW website, the common loon was listed as State Sensitive on the Species of Concern list, as of 5/22/02, when the PDEIS was written. If the classification of this species has changed, this correction will be made in the DEIS.

- The role of this area in the North Cascades Corridor, which stretches from Blanchard Mt. on the west to the Twin Sisters on the East, is totally ignored. This east-west link makes this region even more important for wildlife habitat than the presentation in the PDEIS. [EM12/C2]

Response: References to a “corridor” were noted in several of the comments, although with a variety of names for it (“North Cascades Corridor,” “migration corridor,” “North Cascade to Sea Corridor,” Chuckanuts to Cascades Forest Corridor”). See responses for **NE28 comment [L58/C2]** regarding upland vegetation as well as responses under **NE29**.

- *Current and potential future marbled murrelet habitat in the planning area* - As a relatively intact block of forestland in close proximity to saltwater, state lands around Lake Whatcom provide some of the best opportunities to maintain and re-establish marbled murrelet habitat in the area. This subject is not adequately explored in the PDEIS document. On Page 133 of the PDEIS, the authors suggest that the results of surveys required under Alternatives 3-5 “are not expected to require a significant change in management approach or in the status of murrelets in the planning area.” The presumption that future consultations with DNR region, tribal and WDFW biologists, as required in Alternatives 3-5, will not lead to protection beyond the minimal provisions currently in place for DNR lands, is probably incorrect. Further, the surveys in Alternatives 3-5 are designed to identify potential suitable habitat, not occupied stands. NCAS supports the preservation of potential suitable marbled murrelet habitat in the planning area, as well as stands with the potential to become suitable habitat in the near-term. [EM13/C1]

The HCP does not only affect occupied sites, although it does protect all known occupied sites. Under the Marbled Murrelet Interim Conservation Strategy for the HCP, the DNR developed a predictive model that identified areas expected to contain 95 percent of the occupied murrelet sites on DNR-managed trust lands. The model identified 459 acres of potential suitable habitat (i.e., “reclassified” habitat) within the Lake Whatcom watershed. This potential habitat was surveyed to PSG protocol in 2001-2002, with no detections of marbled murrelets. A second iteration of the model identified 502 additional acres of potential habitat (“reclassified-plus” habitat) within the Lake Whatcom watershed. This potential habitat is currently deferred from harvest, but has not yet been surveyed for murrelets. Additional field assessments would not be expected to identify a significant amount of additional potential suitable habitat.

In addition to the interim deferral of potential habitat, a letter of agreement was signed by representatives of the DNR and U.S. Fish and Wildlife Service addressing further protection for potential suitable habitat in the North Puget Planning Unit (which includes the Lake Whatcom planning area). In this letter, dated November 18, 2002, it was agreed that protection would be given to small pockets (less than five acres) of large conifer trees and individual scattered large

conifer trees with potential nesting platforms (both of which were not identified by the model). Such protection will be accomplished by either bounding these features out of proposed timber sale units, or retaining them through the legacy tree procedure under the HCP (procedure currently being implemented is PR 14-006-090, Legacy and Reserve Tree Levels for Regeneration Harvest Units {"Variable Retention Harvesting"}). It is anticipated that small amounts of additional potential habitat will be identified primarily during reconnaissance for future harvest activities.

All of these protective measures are only in effect under the interim conservation strategy. They are intended to retain murrelet habitat for possible contribution to a long-term conservation strategy. Development of a long-term strategy may be initiated between 2003 and 2005. A long-term strategy is expected to consider pertinent new biological information as it becomes available. For more information regarding possible components of a long-term conservation strategy, see the Final HCP, Chapter IV, page 42.

- *Current and potential future bird habitat in the planning area* – Along with the marbled murrelet, other bird species of concern are identified in the PDEIS. Most notably, the planning area was likely occupied by bird species such as the Northern Goshawk, Vaux's Swift, and the Purple Martin. It is worth noting that the purple martin is associated with old forest characteristics near wetlands (Appendix J, Page J-23). NCAS supports protection of all existing suitable habitat for these species, and stands with the potential to become suitable habitat in the near-term, commensurate with the protection provided in Alternatives 3-5. [EM13/C3]

Response: Comment noted.

- Bird mortality and impacts from towers in the area should be reviewed as part of this plan. [PM63]

Response: DNR will consider additional or new information and/or references that can be identified regarding potential avian impacts from electronic sites. In order to conduct further analysis, consultation may occur with WDFW or other agencies with the jurisdiction and expertise when appropriate and necessary.

NE38 *Fish – Habitat Quality and Quantity*

NE38a *Large stream and wetland buffers desired*

- Prefers Alt 4 - I recommend that every stream be ensured a very large buffer area to protect fish and wildlife in addition to guaranteeing clean water. [L33/C5]
- Stream buffers on all streams should be the maximum allowed for any of the alternatives....Wind buffers should be the maximum allowed for any of the alternatives and should protect both sides of the stream. [L60b/C1 & C2]
- Alternative 4 allows the potential for an old forest, the fullest protection of streams and as you state in your PDEIS, will further eliminate the risk of landslides. [L40/C2]

- I would like to see wide protection of the riparian areas, the width dependant on the size of the stream and steepness of the slope and no logging or selective logging on steep, unstable slopes. [EM2/C2]

Response: DNR believes that because of the significant attention given to watershed and stream corridor protection by the DNR Habitat Conservation Plan, that future impacts on fish from DNR lands will be minimized. DNR is committed to providing buffers along fish bearing and perennial non-fish bearing streams; and protecting seasonal streams when they occur in areas of unstable slopes. DNR is confident that this scientifically based forest management plan should protect and enhance cutthroat and kokanee habitats on state lands within the Lake Whatcom drainage. Under the HCP DNR will provide scientifically based stream buffers along fish bearing waters, which should average between 100 and 200 feet wide. Some of these riparian buffers will receive additional protection with wind buffers of between 50 and 100 feet, when they occur in areas that are highly prone to windthrow. DNR will also provide 100 foot wide buffers along non-fish bearing perennial headwater streams. DNR is committed to staying away from seasonal headwater streams when they occur on unstable slopes. DNR feels that the protection provided in our management plan will contribute to slope stability in the Lake Whatcom tributary basins, and maintain and enhance a more stable forest hydrologic regime.

NE38b *Stream buffers too large*

- 33 foot and 150 foot No-cut Riparian Management Zones on Type 5 streams are arbitrary, capricious, and exceed the requirements of E2SSB 6731.... Forest Practices rules, DNR's HCP, the 1992 Forest Resource Plan all address riparian zones and should provide guidance on riparian zones. [L59/C20]

Response: How wide to buffer fish and non-fish bearing streams is a subject of disagreement among forest and fish scientists. Most scientists agree that buffer widths should be in the neighborhood of 100-200 feet or more, depending on the size of the stream and the degree of protection provided. The PDEIS states a wide range of alternative buffering strategies; some are designed to provide 100 percent protection for fish and other riparian inhabitants, and some provide a lesser level of protection. The degree of buffering protection that DNR provides will depend on many site specific considerations (i.e., stream size, fish use, slope stability, etc.). In some cases there may be management within the buffers, especially if past forest management is interfering with riparian habitat recovery.

NE38c *Road density on state lands*

- *Road density* (page 103) – Please provide information in the DEIS on the road density on state lands in the watershed. [L58/C16]

Response: DNR will provide information about existing road density on state lands in the watershed in the DEIS. Road density was not included in the PDEIS because it does not accurately reflect the environmental impact or protection of an alternative. For example, if a longer road is built in order to avoid sensitive areas like unstable slopes or streams, it should result in less

environmental impact. Since this case would result in a higher road density, people may be misled to believe that it had a greater impact.

NE39 *Fish populations - naturally spawning kokanee and cutthroat trout*

- *Fish populations* (page 118-22) – The PDEIS does not include an accurate discussion of the population status of the naturally spawning native kokanee and cutthroat trout populations. Both species have experienced dramatic declines in numbers of naturally spawning fish in all lake tributaries since the mid-1970s. WDFW fisheries data documenting these declines were submitted to DNR, but were not included in the document. We request that this information be incorporated and its implications taken into account in the Draft EIS. [L58/C21]
- *Value of fish stocks* (page 118-122) – The PDEIS does not include a discussion of the importance and value of the Lake Whatcom kokanee and cutthroat trout stocks to fisheries programs locally, statewide, nationally and internationally. (*see additional details in the letter at website.*) [L58/C23]

Response: As you point out, this correspondence was not included in the PDEIS but the information will be considered in the preparation of the DEIS. WDFW as the agency with jurisdiction and expertise, will be consulted during preparation of the DEIS.

- *Fish stocking* (page 118-22) – regulations do not allow harvest of cutthroat trout due to low population numbers. Large numbers of kokanee salmon have also been supplemented through the hatchery located at the south end of Lake Whatcom since the early 1900's. WDFW cutthroat stocking data was submitted to DNR (see full comment at www.wa.gov/dnr) and kokanee stocking data can be found in Loeff (1994). The EIS should include a discussion of the projected impacts on these native stocks if populations continue to decline from habitat degradation and if stocking programs are discontinued. There is no discussion or summary of the cutthroat trout stocking program that was initiated by WDFW in the late 1990s to supplement the documented population decline in the lake... [L58/C22]

Response: DNR recognizes the importance of the Lake Whatcom cutthroat and kokanee populations. Information concerning potential effects of activities on DNR-managed lands on the fish population will be considered, and if applicable, will be included in the DEIS. DNR has no role in decisions about current or future stocking programs and such discussion would be speculative. WDFW, the agency with fisheries jurisdiction and expertise, will be consulted during preparation of the DEIS.

- The option of NO harvest until the fish populations are restored to historical levels prior to logging. (EM14c/C9).

Response: Comment noted. WDFW, the agency with fisheries jurisdiction and expertise, will be consulted during preparation of the DEIS.

NE40 *Water quality: Alternative 1, nutrients and sediments*

- *Water quality* (page 156) – We would like documentation in the DEIS of scientific evidence that was used to determine that there would be no significant adverse impacts to water quality in the Lake Whatcom watershed through existing regulations for Alternative 1. We would like an analysis of the expected nutrient loss per unit area for cutting type 5 buffers. WDFW has documented sedimentation concerns and the resulting negative impacts to rapidly declining native kokanee and cutthroat trout populations to DOE. We can provide you with this information for use in the DEIS. [L58/C26]

Response: An in-depth analysis of sedimentation has already been conducted through the Watershed Analysis process referenced in the PDEIS. Mitigation measures were developed as prescriptions to balance natural resource protection and industry viability to address present and potentially future problems. Alternative 1 is subject to these prescriptions.

NE41 *Water temperature and fish habitat*

- DNR is correct in stating that one of the intents of the new Forest Practices Rules is to improve fish habitat. Yet the primary concern with Lake Whatcom is not fish habitat, although that is one concern, but water quality in the lake. Keeping the water in Lake Whatcom cool is essential to protecting drinking water. As the lake warms, less oxygen is available. DNR's 1997 Watershed Analysis determined that only 75 percent of the forest stream miles met shade targets for maintaining temperatures. This is a concern for water quality in the lake and we ask that the alternative meet 100 percent of shade targets. [EM16/C20]

Response: Under DNR's HCP buffers on perennial streams average between 100 and 200 feet wide. DNR feels that this forest management plan will provide sufficient shading along tributaries of Lake Whatcom. According to the Federal FEMAT (1993) report, a 100 foot buffer has been reported to provide as much shade as undisturbed late successional/old-growth forests (Steinblums 1977).

NE42 *Mineral rights*

- (page 173) – We would [like] to see information in the DEIS regarding percentage of DNR land in the Lake Whatcom watershed [that] has surface vs. mineral estate rights, including a map to show this information. [L58/C29]

Response: Request is noted and will be considered in preparation of the DEIS.

NE43 *Forest Resources – timber and special forest products*

- On behalf of the people I serve I am in favor of Alternative #5. No clearcutting in our watershed. Please, this lake is the only body of water that we can count on for clean water for our children and grandchildren. I serve over 81,000 people here in Bellingham and they are saying loud & clear "NO CLEAR CUTTING IN OUR WATERSHED!!!!!!!" [EM7/C1]

Response: Preference noted.

- *Retention of trees in logging units* – Average tree retention inside a logging unit should be no less than the 25 percent as described in Alternative 3. This is consistent with the minimum retention levels suggested for Forest Stewardship Council (FSC) certification by the Scientific Certification Systems (SCS) audit of DNR state land management in Western Washington (SCS, 2001). On Page 229 of the PDEIS, a question is raised as to which trees would be retained in this alternative. NCAS supports the retention first of dominant, then co-dominant trees, snags and downed logs in order to best maintain and enhance the forms and functions of older forest ecosystems. [EM13/C4]

Response: Preference noted.

- *Rotation ages for lands available for logging* - The 60-year rotation age in Alternative 2 does not allow for the development of mature forest conditions. Although some locations within the planning area will not be available for logging (and will therefore develop older forests), lands that are logged should be maintained in older forest conditions as well. Older forests are an extremely under-represented forest type in the planning area, and the PDEIS states that adjacent non-state lands, forested or otherwise, are unlikely to develop old forest characteristics and habitats. NCAS supports rotation ages between 120-200 years for conifer forests in the planning area. [EM13/C5]

Response: Alternative 2 represents one strategy for creation of a matrix of forest conditions within the watershed. This matrix would encompass a variety of management intensities from the relatively static management practices in reserve areas to dynamic areas of production forestry. Under this alternative, the distribution of mature forest would not be uniform throughout the watershed but rather a mosaic of interconnected patches of late successional forest. Habitat diversity would be maintained through a mix of forest conditions across the landscape including early and mid-seral stage stands.

- Must consider the forestry management impacts IN CONTEXT (e.g., interaction between forestry impacts and other impacts such as urban toxins entering the lake). [EM14b/C7]

Response: Comment noted.

- Special forest products, while providing insignificant income in comparison to intense timber harvesting, are often the result of diversity. Chanterelles, forming a mycorrhizal relationship with Douglas-firs, lead the Northwest's wild mushroom trade in pounds; only matsutake-also found in the watershed-and morels surpass the chanterelle in dollar value. [EM6/C2]

Response: Comment noted.

- Species diversity of existing timber translates into species diversity among the organisms within the timber ecosystem, whether those species are edibles, floral products, or pharmaceutical extracts. By providing the habitat for such diversity to thrive, we are essentially spreading the dollar value of a brief timber harvesting over an extended, but presently unknown, period of time. [EM6/C3]

Response: Maintaining or enhancing appropriate habitat is the most important factor in guaranteeing the viability of mycological populations, retaining diverse vegetation, and providing future opportunities for sustainable harvest of non-timber resources. Each alternative presented affords varying levels of biological diversity, the highest found in landscapes comprising forest stands that span a wide range of ages. All alternatives provide opportunities for revenue production from non-timber resources although the alternatives providing increased access to interior portions of the forest promote more efficient and economical harvesting of products. Timber harvesting and production of non-timber products can be complementary or even synergistic management activities.

- ...members of Northwest Mushroomers Association are especially concerned that robust stands of older second growth be retained on these public watershed lands. Older second-growth forests have superb uses for mushroom hunting and collecting. Many of the most prized mushrooms such as chanterelles and matsutake are found in the second growth in the watershed, and are forest mushrooms wiped out by a clearcutting regime. [EM19/C3]

Response: Your comments prompted further review of management techniques for selected edible mushrooms. Although we have a general understanding of the geographic ranges, host associations, and mycorrhizal characteristics of important mushrooms, there is a lack of information regarding productivity and management across a variety of spatial and temporal scales. The potential interactions between mushrooms, stand, landscape conditions, and management practices are numerous, complex, and site-specific.

Some mushrooms, such as yellow chanterelles, produce best in stands 40 to 100 years old, and other mushrooms, such as white chanterelles and pine mushrooms, produce best in older or mixed stands. By contrast, some species of morels produce large crops the first year following a forest fire or when a forest is logged or killed by insect infestations. One study modeling forest management for both matsutake (pine mushroom) and clearcut harvesting of timber finds that stands that produce pine mushrooms are generally greater than 60 years old. After that age, production rises rapidly, and continues at a high rate until approximately 160 years of age, after which production declines (Olivotto, 1999). The study goes on to suggest that significant rates of timber harvest are necessary to maximize pine mushroom production in that harvesting of older forest creates a stream of young maturing stands. While clearcutting interrupts fruiting of many ectomycorrhizal fungi research indicates spores or mycelium of the fungi are likely to persist in the soil and colonize young trees in regenerating forests and begin fruiting within 20 years after a clearcut harvest (Ogawa 1982). The practice of leaving clumps of leave trees preserved around productive mushroom patches provides one means of maintaining fruiting structures (Alexander and Pilz, 2000).

Charts 8-12, Area By Selected Year and Stand Age under Sustainable Harvest Model Results, Appendix D graphically depict changes in stand ages over time across the landscape under each alternative. The age classes for each stage are: Open, 0-10, Establishment, 10-20, Competitive Exclusion, 20-40, Understory Reinitiation, 40-70 years and Botanically Diverse, 70-150 years, and Steady State stages. No less than 30 percent of the area within the watershed would be in the latter three stages under all alternatives.

NE44 *Carbon sequestration*

- ***Questioning accuracy of carbon sequestration discussion:*** Carbon Sequestration is one of the issues considered in the PDEIS as an alternative source of revenue to replace timber harvesting....I am not an economist so I am unable to comment directly on the economic analysis. However, ... I have been involved in a NASA-funded effort to develop a carbon budget for PNW forests. Based on this experience, I do feel qualified to comment on the discussion of carbon sequestration provided in the PDEIS. In particular, the information provided on page 73 is incomplete and very misleading. The discussion suggests that authors of this section do not understand the issue and therefore, I have serious doubts about the economic analysis that is presented elsewhere in the document. The authors state that timber harvesting leads to the sequestration of carbon in forest products and that the regrowth of young trees removes carbon from the atmosphere. Both statements are true but several other key parts of the carbon cycle have been left out and this leaves the reader with the incorrect impression that timber harvesting results in the unidirectional transfer of carbon from the atmosphere into permanent sequestration in forest products. This is absolutely positively not true. [EM27/C6]
- ***Questioning accuracy of carbon sequestration discussion:*** The authors of this section either don't understand or have ignored the role of decomposition in the carbon cycle. Briefly, this cycle goes as follows. (*See details in his letter*)...The idea that timber harvesting results in a net storage of carbon in forest products is completely wrong. Additional information on this topic can be found in the following published papers: Harmon, M.E., Ferrell, W.K. and Franklin, J.F. 1990. Effects on carbon storage of conversion of old-growth forests to young forests. *Science* 247:699-702.; Wallin, D.O., Harmon, M.E., Cohen, W.B., Fiorella, M. and Ferrell, W.K. 1996. Use of remote sensing to model land use effects on carbon flux in forests of the Pacific Northwest, USA. Pages 219-237 In: Gholz, H.L., Nakane, K. and Shimoda, H. (eds). *The use of remote sensing in the modeling of forest productivity at scales from the stand to the globe*. Kluwer Academic Publishers, Dordrecht. ISBN 0-7923-4278-X; Cohen, W.B., M.E. Harmon, D.O. Wallin and M. Fiorella. 1996. Two decades of carbon flux from forests of the Pacific Northwest. *Bioscience* 46(11):836-844. [EM27/C7]
- ***Increasing carbon sequestration through rotation lengths:*** There are opportunities for carbon sequestration on DNR lands in the Lake Whatcom watershed. The way to achieve real carbon sequestration is not by harvesting more timber but by extending rotation lengths. Through multiple rotations, the amount of carbon stored in the forest products sector oscillates up and down. The average amount stored is a function of the rotation length. Longer rotations store more carbon, on average, than shorter rotations. Maximum carbon storage levels are achieved in old growth stands. Figuring out the rotation length that maximizes total revenue from both timber harvest and carbon offset trading is a task for a very good forest economist and this is outside my area of expertise. [EM27/C8]
- The economists who wrote the analysis state that carbon offset credits are very thinly traded. I'd agree with this. Nevertheless, in emerging markets, there can be big opportunities and I would urge the DNR to explore this issue farther. There may be significant financial opportunities here. [EM27/C9]

- ... The importance of old growth forests and their role in carbon sequestration in the watershed should not be overlooked. [L43/C8]
- Carbon sequestration is increased by forest management and the use of wood products. (*see discussion in letter and attachment titled “What is the role of forests and forest management on carbon storage?”*) [L61/C3]

Response: Information provided in regard to carbon sequestration will be considered during preparation of the DEIS. DNR will seek additional technical information regarding carbon sequestration, which is one of the potential non-timber revenue sources analyzed in the PDEIS and planned for analysis in the DEIS. The financial analysis was undertaken independently of the writing of this section of the PDEIS. Therefore, reservation pertaining to this section should not be extended to other portions of the PDEIS, including the financial analysis.

Built Environment

BE1 *Use of chemicals*

- Prefers Alt 4 - I deplore clearcutting and emphasize that no chemical pesticides and insecticides be used in our watershed. My father is dying of cancer and I reside with him. His will be the third cancer death in two years in the immediate two blocks. [L33/C4]

Response: We are sorry to hear of your father's cancer. Your preference for no chemicals is noted. Aerial application of pesticides and fertilizers have not been applied by DNR to land under its management in the Lake Whatcom watershed for more than a decade. Forest chemicals are important tools for pest control and tree growth enhancement. Non-target effects are avoided and safety is maintained through regulation of chemical use. Such regulations include federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision

- Prefers Alt 4 - I'm against chemical application in a drinking water supply... [L34/C4]
- No chemical pesticides used. [L60a/C1]
- ... chemical application will ensure high quality of drinking water in the Lake Whatcom watershed. (*DNR believes this was actually meant to read "No chemical..." based on the rest of the letter.*) [L60b/C6]

Response: Forest chemicals are important tools for pest control and tree growth enhancement. Protection of drinking water is very important, so "non-target" effects are avoided and safety is maintained through regulation of chemical use. Such regulations include federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision.

The decision to use herbicides is made with full consideration of alternative methods and their full range of impacts. The choice of method and/or chemical represents a weighed evaluation of efficacy, costs, and impacts of all alternatives on a comparable basis. Under the department's Forest Land Management Program, priority ranking for treatment is non-herbicide, ground applied

herbicides, and then aerial application of herbicides. For all chemical applications, immediate neighbors are contracted to help identify any sensitive concerns which could influence the final treatment selection process. All aerial applications are submitted to the SEPA process for further public comment. All treatments are subject to forest practice regulations and Department of Agriculture rules regarding the handling, storage and application of pesticides and fertilizers. The purpose of these regulations are to ensure that public health, fish and wildlife, wetland and aquatic vegetation will not be significantly damaged, and water quality will not be endangered by contamination. These rules are intended to implement best management practices designed to eliminate the direct entry of pesticides and fertilizers to water and minimize entry of forest chemicals into riparian buffers and wetland management zones.

- The benefits of a mature forest, with sufficient buffer protection and no clearcutting or chemical spraying are worth their weight in gold. [L41/C3]

Response: Under the DNR Habitat Conservation Plan, the size of forested buffers applied to streams is beyond that deemed necessary under forest practices rules and regulations to meet water quality standards. The inherent “gold” property of a no chemical spraying restriction is not universally accepted. Forest chemicals are important tools for pest control and tree growth enhancement.

- Page 100 of the PDEIS discusses an experiment in fertilization on forestlands in the watershed. While it’s unclear, I assume that DNR monitored the stream but the water then flowed into Lake Whatcom. Did you also test increases in nitrate and nitrite in Lake Whatcom at that point? Lakes are different from rivers – they do not transport contaminants downstream, they keep contaminants in the lake. Experiments with a drinking water reservoir are unwise, particularly when lake effects are not measured, nor are cumulative effects considered. Can the use of chemicals in a municipal drinking watershed be justified by a slight increase in timber productivity? [EM16/C21]

Response: The water monitoring discussed on page 100 was associated with operational fertilization and not an experiment. As described in the cited reference, the influence of the operation on the water quality of Lake Whatcom was the main concern, and the lake was monitored in several locations. Therefore the comments about the recovery of water quality apply to the lake as well as the affected streams.

- I am against the use of pesticides, insecticides, and fertilizers especially around Bellingham’s drinking water and in streams and creeks that supply water to fish bearing creeks. Through my studies I have found that pesticides and insecticides adversely affect not only humans, but also plants, insects and animals. Alternatives 1, 2, and 3 support the use of these chemicals around Bellingham’s drinking water. Therefore, I suggest that neither of these three alternatives be chosen. [EM26/C1]
- I want to drink CLEAN UNCONTAMINATED WATER. Vote 4 and 5. NO PESTICIDES. NO INSECTICIDES. NO LOGGIN IN OUR DRINKING WATER PLEASE [CC5/C1]

- In alternatives 1,2,3 the use of fertilizers is condoned. Yet fertilizers are nitrogen containing compounds and these adversely affect salmon as well as other beings. [EM26/C3]

Response: Preference noted. Pesticides (insecticides, fungicides, herbicides) are *intended* to adversely affect their target insect, fungi, plant, etc. Use is highly regulated in order to prevent or minimize negative impacts to non-target life and resources. In any Alternative, the use of chemicals is restricted by federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision.

The department has taken steps to ensure that its herbicide program will not adversely affect the environment. In May 1986, the department commissioned a report, "Worst Case Analysis Study on Forest Plantation Herbicide Use," (K.S. Crump 1986). The report evaluates the entire range of impacts of specific herbicides on the forest environment, including but not limited to water, flora, fauna and human health. In 1987, as a response to the worst case analysis, the department prepared a document, "Herbicide Use on State Forest Lands Public Response Summary and Proposed Management Approach." In addition, the department relies on another report, "Biological and Physical Effects of Forest Vegetation Management" (Newton and Dost, 1984) in its evaluation of herbicides and decisions about their use.

BE2 *Mercury*

- *Mercury and logging* (page 99) – WDFW sent a letter to the Washington Department of Ecology (DOE) citing literature documenting a possible correlation between logging and mercury in two recent scientific studies conducted in Canada. This letter was sent in response to a DOE letter to DNR stating that there were not any likely water quality problems associated with the existing forestry regulations on state lands in the Lake Whatcom watershed. As already mentioned above, mercury has been found in Lake Whatcom fish and crustaceans. To date, WDFW has not received a reply or conflicting evidence to refute those studies. A copy of this letter was sent to DNR, but has not been referenced in the PDEIS or included in the Appendix. We request that this letter be included in an appendix to the DEIS. [L58/C14]

Response: The DNR did receive a copy of the November 21, 2001 letter from the Washington Department of Fish and Wildlife (WDFW) to the Department of Ecology (DOE) Water Quality Program Manager concerning the possible correlation between logging and mercury levels in Lake Whatcom. This letter was a response to DOE stating in a November 15, 2001 letter to the Commissioner of Public Lands that there is no reason to expect that forestry land uses are contributing to the mercury problem. DNR acted on the WDFW letter by reviewing the cited studies and an additional related study, contacting one of the authors, Dr. Richard Carignan, and by contacting DOE to confirm their position on this issue. Dr. Carignan stated that their findings are probably site-specific, and he does not expect them to apply to other areas where topography, runoff, and soils differ. The climate, soils, vegetation, topography, and harvest methods used within

the Lake Whatcom watershed are very different from those of the Canadian Shield of central Quebec. Therefore the DNR concluded that a link between timber harvest and mercury levels in Lake Whatcom is not probable, and therefore under WAC 197-11-060(4)(a) consideration of this issue in the PDEIS is not required.

- *Toxics and hazardous materials* (page 182) – We do not agree that there are no significant adverse impacts for the release of toxics and hazardous materials. We believe that there is the potential for mercury to be released through logging practices and would like this topic discussed in the DEIS. [L58/C30]
- Halt all earth disturbing activities until sources of mercury found in watershed and removed. [EM14c/C13]

Response: Please see response above to comment [L58/C14].

BE3 *Risk of fires*

- If people are concerned about fires, then they should be concerned about logging and harvesting; that is the greatest cause. [PM48]

Response: On the contrary, fires associated with timber harvests account for about one percent of wildfires in Washington. The leading cause of fires is escaped debris burning. Fire statistics are available for the period from 1992 through 2001 for DNR's Northwest Region (which includes Whatcom, Skagit, Snohomish, Island and San Juan counties). This is the statistical breakdown of causes of the 757 wildland fires fought: debris burning – 39 percent, miscellaneous causes – 20 percent, recreation – 23 percent, incendiary – 5 percent, campers – 4 percent, lightning – 4 percent, children – 3 percent, railroad – 1 percent, and logging – 1 percent.

BE4 *Slides, floods and debris flows*

The response for the following eight comments appears at the end of the series of comments.

- Prefers Alt 4 - I am concerned about logging activity on the surrounding slopes, some of which are too steep for road construction and logging without endangering public safety through landslides and harm to the water quality. I urge you to adopt Alternative 4. [L25/C1]
- Prefers Alt 4 - I'm very concerned about the effects of cutting trees and building roads on unstable slopes. Future damage caused by these activities could cost DNR more money (especially when combined with lake cleanup costs) than the revenue created by harvesting. [L33/C3]
- Prefers Alt 4 - You've made me aware of the unstable slopes surrounding our drinking water supply. I strongly recommend you choose an alternative that fully minimizes the public risk involved with landslides. Without a doubt, public health and safety should be your biggest concern. [L34/C2]

- ...I ... believe the passage of E2SSB 6731, which doesn't allow road construction on unstable slopes is of the highest priority to insure prevention of landslides. Your responsibility as stewards of state lands is to insure that citizens of the state are protected from disasters like landslides and it should be of top priority in a drinking water supply. [L34/C4]
- ... Since DNR manages 50 percent of the land in our watershed, careful forest management practices are crucial. I'm very concerned about the future impact on public safety from landslides caused by timber cutting and roadbuilding on unstable terrain. [L37/C1]
- I strongly recommend alternative 4 as it fully minimizes the public health and safety risk involved with landslides. I have always believed our health and public safety should take precedence over trust revenue. [L40/C1]
- ...I am choosing alternative 4...I truly believe this alternative will afford the utmost protection necessary to insure preservation of our drinking water. I also believe it will greatly reduce the risk for serious landslides....That is the absolute most important factor in all the monetary and environmental factors you're analyzing. [L53/C1]
- There is a high level of concern in Whatcom County about logging on unstable slopes in the Lake Whatcom watershed. Just over a year ago, on September 12, 2001, more than 100 citizens, plus a number of elected officials, attended the DNR's first scoping meeting for the EIS and all but two of the citizens who spoke asked that DNR protect clean drinking water and prevent landslides. A common refrain was that clean drinking water and people are of greater value than lumber. Citizens asked again and again that there be no clearcuts in the watershed. People expressed their expectations that DNR management shall not cause harm to public resources. [EM6/C7]

Response: Road construction and timber harvesting on unstable and potentially unstable slopes could increase the potential for mass wasting events. Unstable and potentially unstable portions of the watershed are shown on Maps G-1 and G-2, and/or are described in the PDEIS. Road construction and timber harvesting is "...specially constrained ..." on considerable acreage (28.5 to 87 percent) of the planning area under the various Alternatives. Activities proposed under all Alternatives are regulated under current Forest Practices Rules, Watershed Analysis Prescriptions, and DNR's HCP procedures. These regulations address the protection of slope stability, riparian areas, water quality, and public safety. All activities proposed under Alternatives 2 – 5 must comply with legislation (E2SSB 6731). This prevents new road construction or timber harvesting on unstable slopes. Also, activities planned on potentially unstable slopes under Alternatives 2 – 5 require on-site investigation by appropriate DNR specialist(s) and review by the inter-jurisdictional committee. Road construction and timber harvest activities meeting these standards, under any of the Alternatives, are unlikely to significantly increase the likelihood of mass wasting events that could damage stream channels and water quality, or threaten public safety.

- ... Improvements in "visual impacts" will be almost immediate if the trees are left to mature beyond the onslaught of a 40 or 60 year cutting cycle...more importantly this will allay some of the flooding problems by stabilizing the run-off. [L43/C9]

Response: Because Watershed Analysis was conducted on the Lake Whatcom watershed, prescriptions were developed to address the flooding problems. All of the alternatives are subject to these prescriptions.

- *Storm water* (page 151) – We request that a discussion be included in the DEIS that addresses cumulative effects of storm water from forestry practices and activities on other downstream ownerships. [L58/C25]

Response: Storm water in relationship to DNR-managed lands is discussed in the PDEIS water section, 4.1.1.3 rather than on page 151 in the public services and utilities section. While storm water runoff does occur on managed forests, public utilities are not the usual means of controlling it. Residential use, which would require a much higher level of management of water and storm water, isn't permitted under current zoning or anticipated in the future. DNR addresses storm water management concerns on trust lands through strict adherence to all applicable laws, including the Forest Practices Act and State Environmental Policy Act, and department policies. The request for a discussion in the DEIS of cumulative effects of storm water is noted and will be considered.

BE5 Spiritual and Emotional Health

- Perhaps even more un-quantifiable than aesthetic value is that of religious and spiritual value. ...I experienced the profound connection between the sacred and the profane that I've found only in nature. The extent of this spiritual value lies largely in the experience itself, but the fact that my experience was nested within the Lake Whatcom watershed lends a unique aspect to this value. It's impossible to compare the spiritual value of my experience on Lake Whatcom to a similar experience in a different environment, but I can say with certainty that the diverse ecosystem of this area created an opportunity for spiritual enlightenment that might not have been possible elsewhere. The spiritual value that I personally derive from the biological diversity of the Lake Whatcom watershed is only a small fraction of the total spiritual value, both acknowledged and unacknowledged, to the people of this area. [EM6/C7]

Response: Comment noted. The Lummi and Nooksack tribes, as well as non-tribal citizens, have said they are interested in DNR continuing to protect culturally significant sites and ensuring access for traditional uses, including spiritual uses in the Lake Whatcom watershed. The Commissioner of Public Lands is currently communicating with the state's federally recognized tribes, on a government-to-government level, regarding issues such as MOUs, consultation and notification. Please see **BE10** for information concerning protection of cultural resources.

BE6 Land and shoreline use

- ... When considering water quality, public safety and the environment, one must deal with the watershed as a whole, as it is indivisible regardless of diffused ownership and property rights. Adopting a strongly protective plan like Alt. 4 is imperative since half or more of the watershed is in private hands and subject to unrestricted clearcutting. Alt. 4 will hopefully mitigate some of the adverse effects on water, residences and the environment which result from private logging practices. [L25/C3]

Response: Preference noted. The Forest Practices Rules apply to harvest on private lands.

- Any of the presented alternatives other than Alternative 1 gives DNR very little flexibility to manage trust lands for the benefit of the trusts or the watershed ecosystem. Dept. of Ecology & Health letters supported the present regulations as having little impact on water quality in the watershed. Forest management should be the preferred land use. [L30/C6]

Response: DNR management of forestlands in the Lake Whatcom watershed is compatible with Whatcom and Skagit county land use designations.

- Prefers Alt 5 - The Department of Natural Resources should not be trying to grow any trees as a crop on steep slopes.... in Whatcom county, hundreds of acres of marginal farm land being squandered as 5-acre lots for housing. This is where the tree planting should be taking place. Commercial crops of softwoods should be carried on in the lower, flatter country where harvesting would be simpler and cheaper. [L43/C3]

Response: Preference noted. DNR manages the forest land under its ownership in accord with the land use designated by Whatcom and Skagit counties.

- *Sudden Valley Provisional Urban Growth Area* (page 138) – Whatcom County has designated Sudden Valley as a Provisional Urban Growth Area (PUGA). The PUGA is currently under appeal in Snohomish County by a local environmental organization. [L58/C24]

Response: Comment noted.

- It is very difficult to make a recommendation on the DNR proposal, without knowing what the intent of the private forest land owners are... [EM23/C1]

Response: Comment noted.

- The State Department of Fish and Game has apparently expressed an interest in utilizing a portion of the area, however, I do not see any definitive discussion of this in your report. [EM23/C8]

Response: The landscape plan is intended to guide management of the land under its current use as trust lands. All of the alternatives allow consideration of other uses. We are not aware of a formal proposal for an alternative use by Washington State Dept. of Fish and Wildlife.

BE7 *Land ownership patterns and potential changes to them*

- Some way needs to be found to acquire the forest lands owned by Trillium if an effective plan is to be developed for Lake Whatcom. Be this an outright purchase by the State or Federal government or a combination of a trade and purchase, which does not impact a watershed area. [EM23/C7]

Response: Comment noted.

- There is a lack of information in these alternatives in terms of addressing the land practices that would apply to traded lands. An assurance needs to be added to the alternatives for addressing the protection of land from being traded or sold. [PM57]

Response: Comment noted. The Board of Natural Resources makes decisions regarding all purchases, sales, exchanges and transfers of trust lands based on the best interests of the trust.

- DNR has repositioned parcels for more effective management of land, resources, guided by the legislative directive. Land exchange hearings are held in areas of significant holdings and there is a commitment to openness so people have involvement in the process of exchanges. [PM58]

Response: Comment noted.

- In Whatcom County in the process with Trillium lands there was open, public process. The land above the Glenhaven area was not in DNR holding. [PM59]

Response: Comment noted.

BE8 *Aesthetics – visual impacts of harvest*

- Favors Alt. 5. Improvements in “visual impacts” will be almost immediate if the trees are left to mature beyond the onslaught of a 40 or 60 year cutting cycle... [L43/C9]

Response: Comment noted.

- I would also like to see the cuts be spread around and kept smaller to decrease the visible impact as well as prevent large areas to be cleared of foliage and the structures that hold the slopes. [EM2/C3]

Response: Stand management decisions will follow completion of the landscape plan. DNR considers the requirements of Forest Practices Rules, the HCP and the Forest Resource Plan in planning timber harvests over time and across the entire Lake Whatcom watershed.

BE9 *Recreation*

- Refraining from timber harvesting may decrease the monetary value directly acquired by DNR from management of those lands, but it will undoubtedly increase the recreational and aesthetic value associated with their use. Public enjoyment derived from hiking, mountain biking, mushroom and berry picking, and bird watching may be directly correlated with the biodiversity of the watershed. The fact that these activities aren't directly related to increases in revenue for DNR does not undermine the extent to which their value should be considered when developing a watershed management plan. [EM6/C6]

Response: Comment noted. Please see **BE 15** [L59/C12] below and **LP8** regarding revenue obligations to trust beneficiaries.

- We encourage DNR to plan for non-motorized recreation as part of the Lake Whatcom Landscape plan. This is likely to become a more desirable place to recreate as the forest matures. [EM16/C34]

Response: Comment noted.

BE10 *Historic & Cultural Preservation*

- *Fire* (page 195) – Fire could also negatively impact cultural resources. [L58/C33]

Response: Comment noted.

- Native American cultural sites unaffected unless the tribe(s) is in full agreement. [L60a/C2]

Response: Cultural resource management, even on the federal level, does not require full agreement from affected tribes. In some cases tribes may disagree on treatment for a cultural site; however, every effort is made to work cooperatively on a government-to-government basis.

- A memorandum of agreement with the tribes is long overdue and should be a part of any landscape plan. [EM16/C33]
- I am a Cherokee student at Northwest Indian College and have concerns about cultural resources in the Lake Whatcom area. I have studied environmental protection of native forests and cultural resources and am writing to encourage the DNR to strongly consider options 3, 4 and 5 for the management plan...These are the only options that address cultural resources, which is at the heart of preserving our native forest resources. [EM22/C1]
- I am not that familiar with the cultural concerns of the Indian Tribes on this property. I do understand that any physical aspects are not “renewable resources” and I believe you MUST reach agreement with them, unless you desire to have the Federal Government arbitrate this issue. [EM23/C5]
- Tribes have a concern regarding land exchanges. Tribes have a matrix of cultural sites and there are undiscovered sites in the area. Alternative 1 does not respect the treaty or inherent rights. Cultural resources are non-renewable. Also, tribal access for traditional practices is needed. All these things need to be protected into perpetuity. [PM26]

Response: The Commissioner of Public Lands is currently communicating with the state’s federally recognized tribes, on a government-to-government level, regarding issues such as MOUs, consultation and notification. There also have been changes in the internal procedures of the Forest Practices Division of DNR, implementing WAC 222-16-050(5)(k) and WAC 222-20-120, rules and regulations dealing with cultural resource protection. As a result, the potential impacts to cultural resources under the five alternatives have changed. Briefly, the procedural changes include:

- 1) The Tribe(s) notifies DNR of the geographic area for them to receive forest practice applications (FPAs).

- 2) DNR sends electronic notice to the Tribe(s) of FPAs in those areas.
- 3) Tribe(s) identifies lands that contain cultural, historic or archaeological resources and contacts DNR.
- 4) This triggers a meeting with the objective of agreeing on a plan for protecting the archaeological or cultural value of the area.

This procedure could function as part of the consultation process under Section 106 of the National Historic Preservation Act. As a result of these changes, the Lummi and Nooksack Tribes can meet with DNR on each FPA where cultural sites may be affected and to voice their concerns. DNR will also continue to use the TRAX system or a GIS cultural resource layer to identify cultural resources recorded with the State Office of Archaeology and Historic Preservation. This increases the level of protection given to cultural resources under alternatives 1 and 2. DNR can deal with protections on a case-by-case basis as in alternatives 1 and 2, or programmatically through a Cultural Resource Management Plan, MOUs and/or MOAs as in alternative 3, 4 and 5. The new procedure will be reflected in the Draft EIS.

BE11 *Silviculture*

- On areas where cutting is allowed, retaining 70 percent of the trees and logging on a 200-year rotation is preferred. [L60b/C5]

Response: Comment noted.

- Wait until lake is removed from 303d list before any logging activity allowed. [EM14c/C18]

Response: DNR does not believe it will be necessary to wait until Lake Whatcom is removed from the 303d list before conducting timber harvest on state trust lands. Department of Ecology has stated that DNR's controls for the state trust lands in the Lake Whatcom watershed are "currently the state of the art for reducing the risk of pollution from commercial forestland," that "properly managed commercial forestland has been recognized as the most benign active land use for watershed protection" and that "cleanup of Lake Whatcom is more likely to be focused on reducing pollution from non-forestry uses."

- Please consider longer rotations of 140 to 200 years as part of the selected alternative. A forest that has a greater percentage of area hydrologically mature will improve water quality in the lake. [EM16/C35]

Response: Longer rotations are considered under alternatives 3 and 4.

- Clearcutting should not be an option in any part of the watershed, nor anywhere else in our state for that matter. The environmental damage from clearcutting is too high a price to pay for our lumber needs. Sustainable logging methods are the sensible, responsible way of doing business. I would pay more for lumber harvested via sustainable methods. [EM21/C1]

Response: Comment noted. Opinions differ on the environmental impacts of clearcutting. Many interests believe this forest regeneration system should be limited, or even prohibited under any circumstance. Other interests believe it is an appropriate silvicultural tool to meet many

management objectives in a financially sound, scientifically correct manner. Clearcutting, properly used, has a role in forest management to create desired conditions in forests. It is an appropriate silvicultural method for regenerating species that are shade-intolerant and the optimum method to achieve other management objectives. However, as with any land management practice, it can have undesirable effects if not used correctly. Clearcutting should be retained as a forest management tool and applied only by trained and experienced professionals under appropriate conditions, and as may be constrained by economic and social factors.

- This is the third meeting that the public has told you NO CLEAR CUTTING. Why can't you understand that?.... [CC16/C1]

Response: Please see the response above to comment [EM21/C1] and LP5 and LP7 regarding trust financial obligations.

BE12 Roads

- Prefers Alt 5 - ...look elsewhere for sources of income...True, there are repeater sites that generate some income but instead of using roads they should be required to access their sites by helicopter for maintenance. If there are roads, there will be wheeled vehicles and they are hard to control. [L43/C7]

Response: Existing long-term road use agreements make this difficult, but alternative 5 assumes this would be possible.

- No new roads in unstable soils/conditions, and reconfiguration of any existing roads in those conditions to bring risk of blowout to near-zero. [L60a/C3]

Response: The author of this comment favored alternative 4. Because road reconstruction is not allowed under alternative 4, "reconfiguration of any existing roads" would either be limited to abandonment or the alternative would have to be altered to allow for reconstruction. Also note that, even with reconstruction, there will remain a natural risk of slope failures, so the risk will never be reduced to "near-zero." Please also see the general response to NE2 concerning mass wasting.

- No new logging roads should be constructed in the watershed and old roads should be removed. The erosion from road construction ends up in our drinking water. This is not acceptable. I would support state initiatives to put people to work removing old logging roads. [EM21/C2]

Response: Forest practices rules that apply to state and private forest management in Washington were developed in cooperation with Department of Ecology to ensure that road construction and timber harvest is in compliance with the Federal Clean Water Act and other water quality laws. Compliance with these laws and site-specific prescriptions helps to ensure that forest management is done without harming water quality.

- No road building should be allowed on possible or probable unstable slopes. [L60b/C3]

Response: Watershed analysis has identified some areas that are too unstable for road construction and other areas that require extensive design work, so any forest roads built in the Lake Whatcom watershed must adhere, at the least, to those watershed analysis prescriptions.

- *Roadless areas in the planning area* – NCAS supports keeping areas roadless that are currently unroaded (locations identified in the PDEIS). Removal of trees from these areas should be done without new road construction. [EM13/C10]

Response: Comment noted. Some of the areas identified as currently having few roads or being unroaded have been identified in the PDEIS as “inaccessible.” Inaccessible areas were assumed to be unavailable for harvest because two conditions exist: 1) based on mapped information, roads cannot be built for access because of the restrictions in E2SSB 6731 for crossing unstable slopes, and 2) helicopter harvest would not be economically viable. Under alternatives 1-4, if on-the-ground verification showed that the ground was stable, additional roads could be built to access the “inaccessible” areas.

Designating all of the larger contiguous areas that are unroaded or lightly roaded as off limits to further road construction would greatly increase the area that is economically inaccessible to management due to the high costs of helicopter harvesting.

- Retire all existing abandoned logging roads. [EM14c/C17]

Response: Abandoned roads should be considered “retired.” Culverts and bridges are removed, natural drainage is restored, and vehicle access is blocked. Once abandoned, a road shouldn’t adversely affect the environment.

- *Road density* (page 103) – Please provide information in the DEIS on the road density on state lands in the watershed. [L58/C16]

Response: Road density was not included because it does not accurately reflect the environmental impact or protection of an alternative. For example, if a longer road is built in order to avoid sensitive areas like unstable slopes or streams, it should result in less environmental impact. Since this case would result in a higher road density, people may be misled to believe that it had the greater impact. DNR will provide information about existing road density in the DEIS.

- *Orphaned roads* (page 192) – The PDEIS should also state that orphaned roads are not legally required to be repaired under current forest practices rules. [L59/C31]

Response: It is true that repair of orphaned roads is not required. The DEIS will reflect this.

BE13 *Trust revenue – differences among alternatives*

- The financial net return differences between Alternatives 2, 3 and 4 are almost negligible, in proportion to whole budget levels of all agencies involved, including the school systems. [L60a/C4]

- Prefers Alternative 4 - It's obvious that Alternative 3 would generate a comparatively small increase in revenue when compared to Alt.4. [L33/C5]
- Alternative 4 is only a few thousand dollars difference from Alternative 3. [L55/C2]

Response: Management under Alternative 2 would yield an estimated \$359,510 annually for local beneficiaries from the Whatcom County Forest Board lands; these funds would be divided among the Mount Backer School District, the county road district, fire district, library district, the county Conservation Futures fund and the Port, as well as the state general fund and DNR for continuing investments in land management. In addition, an estimated \$305,400 would be realized from management of the Common School trust lands in the planning area; this revenue would go to the state's K-12 school construction account (75 percent) and provide for continuing management of the land (25 percent).

Under Alternative 3, an estimated \$75,166 would be generated from management of the Forest Board lands. An additional \$63,853 would be generated from management of the Common School trust lands in the planning area.

Management under Alternative 4 would produce an estimated \$68,468 from the Whatcom County Forest Board lands and an estimated \$58,163 from the Common School trust lands.

- Prefers Alternative 4 - [it] provides relatively adequate protection: no roads and logging on potentially unstable slopes, no aerial spraying of chemicals, etc. The estimated revenues are only marginally less than Alternative 3, but Alternative 4 provides for considerably stronger protection of the water supply. [L25/C2]

Response: Preference noted.

BE14 *Trust revenue and jobs are less important than quality drinking water*

- Prefers Alternative 4 if these are the only options - The revenue projections in the PDEIS from the different alternatives seem very low and I challenge DNR to find another vehicle for creating these dollars. Look for a new revenue basis. I understand it took over \$8 million to clean up the 1983 landslide disaster. [L31/C2]

Response: Preference noted. The PDEIS examined alternative revenue sources but found they fell far short of replacing providing trust income comparable to that which is likely from timber harvest. The DEIS will consider alternative income sources.

- Prefers Alt 4 - I've always had a difficult time understanding how the state can weigh revenue against the health and well-being of people and our water supply. When I saw the revenue documents at the meeting held by Linda Marrom and Lisa McShane I really couldn't understand why harvesting this drinking water supply is such an issue. It's a municipal drinking water source for 85,000 people. [L32/C2]

Response: DNR shares the heartfelt concerns of local citizens that their water supply be protected appropriately. The state's departments of Health and Ecology have provided written assurances that forestry activities on state trust lands do not appear to have a significant impact on Lake Whatcom drinking water quality. DNR follows Forest Practices Rules, its HCP requirements and the Forest Resource Plan, and the Lake Whatcom Watershed Analysis prescriptions in conducting land management activities and places a high premium on protecting public safety and water quality. Based on the corrected (10/18/02) version of the documents presented at the meeting held by Linda Marrom and Lisa McShane, management under Alternatives 3 and 4 would provide substantially less income than under Alternative 2. The estimated amounts are shown above in the first response under **BE13**.

- For a relatively minor amount of monetary return, DNR is willing to potentially compromise the safety and water quality for the public residing in the Lake Whatcom watershed. Alternative #5 is the only logical alternative to present to the Board of Natural Resources. [**CC8/C1**]

Response: Preference noted.

- Prefers Alternative 4 - This is a very complicated issue that could result in both lost revenue and jobs for many people. We believe protecting Whatcom County's drinking water source is more important than these issues. Alternative 4 provides strong protection and although it will have consequences that are not ideal, we believe it best protects water in the watershed and are confident lost revenue and jobs can be resolved in other ways. [**L27/C1**]

Response: Preference noted.

- Prefers Alternative 5 - Only Alternative 5 truly protects drinking water. The PDEIS indicates this alternative will not be considered without viable funding mechanisms associated with it. Any damage to our drinking water supply will cost much more in the long haul than the pittance of revenue decrease proposed in Alternative 5. Costs to citizens of our community, and to the State, will skyrocket with the need for increased treatment, either of the water or people who may become ill from detrimental effects of logging the trees. [**L29/C2**]

Response: Preference noted. DNR believes no significant impacts are likely to drinking water quality from state trust lands managed according to the requirements of the HCP and current Forest Practices Rules.

- Prefers Alternative 4 - The passage of E2SSB 6731 is a vital affirmation of importance of Lake Whatcom to maintain public health. We're counting on the Lake Whatcom Landscape Committee to honor their commitment to safeguard our health and safety. The difference in trust revenue generated between Alt. 3 & 4 is most decidedly not worth the inherent risks involved to our community. [**L37/C4**]

Response: According to E2SSB 6731, the DNR "shall consult with the Lake Whatcom management committee for the development of the landscape plan, to review the site-specific activities and make recommendations."

- I strongly recommend alternative 4 as it fully minimizes the public health and safety risk involved with landslides. I have always believed our health and public safety should take precedence over trust revenue. [L40/C1]

Response: Preference noted.

- Prefers Alt 4 - The revenue is inconsequential to me, as I believe the quality of the plan sets well above the need for trust revenue from a drinking water supply. I hope to see a risk analysis in the upcoming draft...the loss of revenue does not seem significant, since the numbers are so small. [L41/C2]

Response: Preference noted.

- Prefers Alt 4 - Trust revenue is necessary in this state, but not when it jeopardizes public health and safety. [L45/C3]

Response: Comment noted.

- I'm writing in support of Alternative 5. Clean water, a basic human need, should take precedence over the funding of public institutions, and Alternative 5 accomplishes this directly. [L46/C1]

Response: Preference noted.

- Account for economic cost to Whatcom County for destruction of water quality and/or fishing tourism. [EM14c/C15]

Response: Comment noted.

- Although Alternative 5 restricts revenue to the Common School Construction Account, I believe that it is more important to have healthy drinking water and healthier streams for endangered animals. I believe that the income for the Common School Construction Account can be found from another source rather than logging around Bellingham's water supply. [EM26/C6]

Response: Preference noted. DNR must meet its fiduciary obligation to the trust beneficiaries while providing appropriate levels of environmental protection. We will continue to seek additional revenue opportunities for the trusts but revenue potential from alternative sources appeared to fall short of the potential of timber harvest for trust lands in the Lake Whatcom planning area in the PDEIS analysis.

BE15 *Trust responsibilities/trust revenues should have carried more weight in the PDEIS.*

- PDEIS management objectives "adopted" by the Department and Committee should be reviewed for consistency with the 1992 Forest Resource Plan and Trust Mandate... There is no explicit management objective in the PDEIS that provides for maintaining or increasing revenues from timber production to provide sustainable income to trust beneficiaries. This is a

glaring omission in PDEIS objectives... The EIS needs a thorough discussion of how each EIS alternative helps DNR and the Board fulfill the Trust Mandate. [L59/C12]

- Prefers Alternative 1 - Revenue projections seem to be optimistic. Alternative 2 will probably only produce a third of Alternative 1 and Alternatives 3 and 4 will produce none. Trust revenues are at stake and all alternatives need to be field tested for operability and log value. Once an alternative is picked and revenues fall short, there is usually no way to go back and fix it. [L39/C3]
- Alternatives 2-5 substantially reduce net present values without offsetting benefits in water quality, public safety, or other non-timber incomes. [L59/C6]
- There is revenue in Whatcom County that comes from timber that needs to be taken into consideration. [PM67]

Response: DNR and the Board of Natural Resources are well aware of their obligations as a fiduciary to the trusts whose land is at issue in the Lake Whatcom watershed. At the same time, DNR must comply with validly enacted laws, such as E2SSB 6731. DNR and the Board must be mindful of their fiduciary obligations and attempt to harmonize as much as possible the Lake Whatcom legislation with these obligations. As we proceed through the next steps in the SEPA process, including the DEIS and FEIS, DNR will continue to evaluate the range of alternatives to ensure that they are all reasonable and capable of being achieved. In order to maintain fidelity to the State's fiduciary obligations to the trusts involved, if implementing the preferred alternative would reduce trust income by restricting management of the trust assets, compensation for the trusts may be sought as appropriate.

- Prefers new alternative that leans toward Alternative 1 - I strongly recommend that DNR Forest Board redo the Lake Whatcom Landscape design process and initiate alternatives that consider trust responsibilities along with balancing watershed protection. [L30/C9]

Response: At this stage of the Lake Whatcom Landscape Planning Process a preferred alternative is being developed, after which a DEIS will be prepared. There will an opportunity for public comment when the DEIS is released this summer, and again this fall with release of the FEIS. DNR will take both watershed protection and trust obligations into account in developing the preferred alternative with the assistance of the DNR Lake Whatcom Landscape Planning Committee.

BE16 *Other financial concerns*

- The reductions shown are for timber revenues only and do not include other direct and indirect local and statewide economic benefits that accrue to commercial forest operations and milling. Thus the economic magnitude of projected NPV reductions substantially is understated. The document should reflect this fact. [L59/C7]

Response: The financial analysis for the PDEIS focused on impacts to trust revenues. In the DEIS we will take care to clarify what is and is not addressed in such analyses.

- *Financial assessment of benefits from other income* - The PDEIS Financial Assessment of benefits from other income opportunities deserves more discussion in the EIS, using the following statement as a base: “it appears highly unlikely that combined revenues from carbon sequestration, certified lumber production, and leasing of trust land for recreation activities could financially justify the choice of either of the landscape alternatives...over the reference alternative (Alternative 1). [L59/C8]

Response: Comment noted.

- *Calculating monetary value* - There is concern that the DNR plan to present to the BNR does not show monetary value commensurate with the impacts to water quality. [PM64]

Response: DNR does not anticipate significant impacts to water quality under any of the alternatives.

- Provide bonding to indemnify City of Bellingham’s cost to immediately replace or treat the clean water supply provided by the watershed if DNR actions cause severe drinking water pollution. [EM14c/C20]

Response: Indemnification bonding is not required in E2SSB 6731, nor is it a part of watershed planning. Moreover, the state is self-insured.

BE17 *Compensation for altered land management*

- DNR has a legal obligation to seek compensation from altered land management; this was not identified in the PDEIS. This statute [RCW 79.01.128] should be recited and discussed in the DEIS. [L59/C15]

Response: The DEIS will discuss RCW.01.128, though it is not an issue that must necessarily be addressed in an environmental impact statement. RCW 79.01.128 states that “In the management of public lands lying within the limits of any watershed over and through which is derived the water supply of any city or town, the department may alter its land management practices to provide water with qualities exceeding standards established for intrastate and interstate waters by the department of ecology: PROVIDED, that if such alterations of management by the department reduce revenues from, increase costs of management of, or reduce the market value of public lands the city or town requesting such alterations shall fully compensate the department.”

BE18 *Legal obligations to trust beneficiaries*

- As the Department of Natural Resources (DNR) reviews the PDEIS, public input, and other information, I am sure that it will want to consider its obligation to manage Trust Lands in the interest of the children in our local communities, one of the Trust Lands’ most significant beneficiaries. The interests of our children can only be served if decisions are made with a balance of concerns for the environment, the economy, and specific revenue interests. First and foremost, I urge the DNR to keep in mind its “legal duty to produce long-term income for specific trusts, which are the trust beneficiaries” as clearly stated in the PDEIS (p. 16, sec. 2.2).

One of the primary purposes of the DNR is to manage the lands in a manner that will ensure the revenue generating capacity of the trust lands that it manages. Doug Sutherland states, "...much of [DNR managed] land is dedicated to supporting public institutions like schools." [EM4/C1]

Response: Comment noted.

- Prefers Alt 1 - Mount Baker School District urges the Board of Natural Resources to adopt Alternative 1 as the Lake Whatcom Landscape Plan. Alternative 1 is the only alternative that meets the trust revenue production obligations while providing appropriate environmental protections. The only quality that significantly differentiates the Lake Whatcom watershed from all other DNR-managed lands is the fact that Lake Whatcom serves as a municipal water supply. The November 15, 2001 letter from Megan White of Washington Department of Ecology included in the appendix to the PDEIS indicates quite clearly that standard Forest Practice Rules combined with the current watershed analysis prescriptions are sufficient protection for water quality in Lake Whatcom watershed... The revenue generated by county transfer land in Lake Whatcom watershed allows us to provide programs that make a real difference in children's lives. Don't trade our very real and important programs for environmental restrictions that would have no significant benefit to water quality. [EM5/C2]

Response: Comment noted.

- In evaluating the alternatives for the Lake Whatcom Landscape Plan, the Board of Natural Resources must balance legal requirements for environment protection with trust obligations. It has been argued that Alternative 1 of the PDEIS is in conflict with provisions of E2SSB restricting new road construction. If the new road construction restrictions included in Senate 6731 Sec. 1 (3) are interpreted to reduce revenue production to the extent outlined in Alternatives 2 through 5 of the PDEIS, then that interpretation would conflict with legal obligations to produce trust revenue. The restriction on new road construction would not provide any significant additional protection of water quality that is not already provided by current regulations. The potential revenue reductions of Alternatives 2 through 5 are too great to justify their adoption. If there is a conflict between laws, submit this issue back to the legislature. [EM5/C3]

Response: Comment noted.

BE19 *Revenues only part of financial assessment – assess potential costs of landslides*

- Our financial analysis of the annual financial revenues from DNR lands in the Lake Whatcom watershed, based on Table PDEIS4-1, Appendix D – Financial Assessment – 9/13/02, is attached for the record. We obtained the local disbursement list from the Whatcom County Treasurer based on a representative tax parcel in January 2002. The following is an excerpt from our revenue table, and does not include all the revenues. (see table in full letter at the DNR website, www.wa.gov/dnr .) However, the revenues are only part of the overall financial assessment. We ask that, as part of the DEIS, the DNR conduct a risk assessment for potential

landslides in the watershed based on potential costs of lake clean up, loss of homes, loss of infrastructure and loss of life. [EM16/C37]

Response: Comment noted.

- Any landscape plan that includes some level of risk, such as timber harvest or roads on unstable or potentially unstable slopes, needs to assess both potential revenues and potential losses in light of such risks. Alternative 2 allows partial timber harvests on potentially unstable slopes. This is an experiment with an unknown level of risk. The revenues are calculated with a 200 year window; the risks should be calculated over the same time frame for each alternative. (See full example in comments list in full letter at the DNR website, www.wa.gov/dnr .) [EM16/C38]

Response: Comment noted.

BE20 *Other revenue comments*

- Sixty percent of the revenue from the 16,000 acres in the landscape is returned to Whatcom County via Forest Board Trust. County accepts revenues and funds programs, e.g., road fund, similar to other tax income, with around half to the school fund. [PM35]

Response: Comment noted.

- The school construction fund revenue goes straight to the state. [PM36]

Response: The Office of the Superintendent of Public Instruction administers the School Construction Assistance Program. This program provides state matching funds for local school district construction projects. The Superintendent of Public Instruction is a voting member of the Board of Natural Resources.

General - Alternatives

PDEIS comments, as part of the SEPA process, are not intended to serve as “voting” by the public for a preferred alternative. The SEPA process is intended to ensure that potentially significant environmental impacts and reasonable alternatives are identified and evaluated. “Voting” for an alternative is neither encouraged nor considered part of the SEPA process. However, many of the commenters indicated that they preferred a certain alternative among those analyzed in the PDEIS. Those comments are grouped for alternatives 1 through 5 and may not receive a direct response from DNR. Other categories of comments which follow suggest additional alternatives that should be considered, address how the range of alternatives is presented, propose changes to the five alternatives, raise a variety of issues, and recommend including or excluding particular elements in the final preferred alternative.

GA1 *Favor Alternative 1:*

- I am concerned about the environment and about schools. I believe the least restrictive landscape plan is in the best interest of the community, and that it's possible to successfully log these forests without damaging either the soil or water. I see no need to 'lock up' these timber tracts. [L1/C1]
- I hope the preferred alternative is as close to Alternative 1 as possible. Going from managing 75 percent of your land down to 57 percent in one step is not acceptable. [L2/C1]
- The only acceptable alternative is Alternative 1 and I understand it is not available. There needs to be an alternative as close to #1 as possible. With watershed analysis, HCP and Forests & Fish there will be plenty of watershed protection. [L3/C1]
- The DOE and DOH reports [letters] show water quality will not be significantly impacted by forest management. With protections already in place, it's time to maximize returns to the trusts. Alternative 1 is the only reasonable choice. If it's not available, write one as close to it as possible. [L4/C1]
- I support the adoption of Alternative 1. [L9/C1]
- I'm a professional forester and voting member of the Lake Whatcom Watershed Forestry Forum. For the above reasons [*existing laws adequately protect the water; preventing income generation could mean lands get sold; development, not forestry, is the threat to water quality*] and more, the forum has voted to endorse Alternative 1 as the preferred alternative. [L9/C6]
- I have a concern with how the five alternatives were presented. They're biased against all the research and work already accomplished for DNR management in the watershed, as represented by Alternative 1. If Alternative 5 is an option, then Alternative 1 should have been the biological growth capacity. The presented Alternative 1 should really represent a middle of the road option and be represented as Alternative 3. Any of the proposed alternatives other than Alternative 1 gives the DNR little flexibility to manage trust lands for the benefit of the trusts or the watershed ecosystem. [L30/C2]

- Alternative 1 has already balanced environmental concerns with trust revenue generation in the watershed. Watershed analysis, the HCP, and Forests and Fish rules guarantee ample safeguards for Lake Whatcom. [L30/C5]
- All alternatives except Alternative 1 violate the DNR's trust mandate. [L39/C2]
- I believe that the best choice for the Lake Whatcom area is Alternative 1. It appears to me that the forest is the answer not the problem. Let's actively manage the forest for the benefit of the trust. [EM1/C1]
- The major concern of the law that has driven this PDEIS is protection of the lake....According to the Departments of Ecology and Health, option #1 [Alternative 1] is good enough to protect the health of the lake. Why go any further? [EM8/C3]
- Studies have shown that a forest that is managed as it would be under Alternative 1 has the most diversity of wildlife because of the diversity of the stand. There will be enough mature stands in the riparian zones and on the unstable slopes. [EM8/C3]
- I fully support our logging industry. I do not feel logging will affect the watershed. I am for Alternative 1. [CC3/C1]
- Mount Baker School District urges the Board of Natural Resources to adopt Alternative 1 as the Lake Whatcom Landscape Plan. Alternative 1 is the only alternative that meets the trust revenue production obligations while providing appropriate environmental protections. The only quality that significantly differentiates the Lake Whatcom watershed from all other DNR-managed lands is the fact that Lake Whatcom serves as a municipal water supply. The November 15, 2001 letter from Megan White of Washington Department of Ecology included in the appendix to the PDEIS indicates quite clearly that standard Forest Practice Rules combined with the current watershed analysis prescriptions are sufficient protection for water quality in Lake Whatcom watershed.
.... The revenue generated by county transfer land in Lake Whatcom watershed allows us to provide programs that make a real difference in children's lives. Don't trade our very real and important programs for environmental restrictions that would have no significant benefit to water quality. [EM5/C2]
- As a local roadbuilder and familiar with the issues and local forest, I see Alternative 1 as a good choice for Lake Whatcom, the local economy and the DNR. [CC1/C1]

GA2 *Favor Alternative 2:*

- Alternative 2 should be considered as the "bare minimum" approach to accomplishing these two objectives. However, the watershed requires protection of streams, riparian areas, unstable slopes and wetlands. DNR needs to give high priority to forest management that best guarantees this will occur... Recognizing it's important that these lands remain as Forest Board and Common School Trust lands, I urge you to select as many of the provisions in Alternative 4 that

further define Alternative 2 to protect the watershed and guarantee the lands will remain under DNR management. [L38/C3 & C5]

- *Unstable slopes* – Supports the prohibition of new road construction and timber harvest on unstable slopes described in Alternative 2... [EM13/C9]

GA3 *Favor Alternative 3:*

- The first two alternatives seem untenable due to the disregard they show for the health of both the physical environment and what is the drinking water source for no small number of people in Whatcom County. ... Alternatives 3 and 4 are similar in many respects. They both offer the appropriate consideration for the environment, the county's drinking water supply, and the safety of life and property in the area. Their chief difference, however, lies in the length of the logging cycle proposed. In that respect, Alternative 4, I feel, is somewhat too severe on the DNR. The timber that stands now is 100-year growth, and that would seem far more reasonable a cycle than Alternative 4's proposed 200-year cycle. I request you consider selecting Alternative 3 for further study. [L51/C1, C2 & C3]
- *Retention of trees in logging units* – Average tree retention inside a logging unit should be no less than the 25 percent as described in Alternative 3. This is consistent with the minimum retention levels suggested for Forest Stewardship Council (FSC) certification by the Scientific Certification Systems (SCS) audit of DNR state land management in Western Washington (SCS, 2001). On Page 229 of the PDEIS, a question is raised as to which trees would be retained in this alternative. NCAS supports the retention first of dominant, then co-dominant trees, snags and downed logs in order to best maintain and enhance the forms and functions of older forest ecosystems. [EM13/C4]
- *Rotation ages for lands available for logging* ... NCAS supports rotation ages between 120-200 years for conifer forests in the planning area. [EM13/C5]
- *Maintaining Forest Hydrologic Regimes* – To return the forest hydrologic regime to within the range of natural variability for each sub-basin (assuming mature forest covered much of the landscape in pre-settlement times), NCAS supports, at a minimum, the retention of older forests as outline in Alternative 3. [EM13/C8]
- Alternative 3: We support the increased road restrictions under this alternative. Maintaining a greater percentage of forest in mature forest conditions is an important part of protecting drinking water and public safety. [EM16/C28]
- Alternatives 3 and particularly 4 and 5 will result in significantly improved habitat for fish and wildlife in the Lake Whatcom watershed. Streams will be cleaner with better spawning gravel for native kokanee and the riparian areas will provide a more diverse habitat for a number of creatures. It will move from being a monoculture to being a diverse, older forest that supports a healthier wildlife population. [EM16/C32]

- *Prefers 3, 4, or 5:* I am a Cherokee student at Northwest Indian College and have concerns about cultural resources in the Lake Whatcom area. I have studied environmental protection of native forests and cultural resources and am writing to encourage the DNR to strongly consider options 3, 4 and 5 for the management plan... These are the only options that address cultural resources, which is at the heart of preserving our native forest resources. [EM22/C1]

GA4 *Favor Alternative 4:*

- Select for further study an alternative that provides the strongest protection for clean water and public safety in the watershed. Alternative 4 would be such an alternative. [L6/C1]
- I am concerned about logging activity on the surrounding slopes, some of which are too steep for road construction and logging without endangering public safety through landslides and harm to the water quality. I urge you to adopt Alternative 4. [L25/C1]
- (Alternative 4) provides relatively adequate protection: no roads and logging on potentially unstable slopes, no aerial spraying of chemicals, etc. The estimated revenues are only marginally less than Alternative 3, but Alternative 4 provides for considerably stronger protection of the water supply. [L25/C2]
- I would strongly suggest Alternative 4. It is biologically sound, protects drinking water, protects unstable slopes, streams and headwaters. [L26/C1]
- This is a very complicated issue that could result in both lost revenue and jobs for many people. We believe protecting Whatcom County's drinking water source is more important than these issues. Alternative 4 provides strong protection and although it will have consequences that are not ideal, we believe it best protects water in the watershed and are confident lost revenue and jobs can be resolved in other ways. [L27/C1]
- I recommend Alternative 4 be proposed and studied as the most viable alternative for the Draft EIS. It provides some of the much-needed protection for streams, unstable slopes, and wetlands from logging and road construction. Buffers for all these areas should be at least 200 feet where no trees are cut. [L29/C1]
- I would choose Alternative 4 if this was my only option. I would prefer to find an alternative to road building, logging and clear cutting in the watershed. [L31/C3]
- I am choosing Alternative 4. I believe this will preserve Lake Whatcom. I strongly recommend Alternative 4 as it eliminates the landslide risk to public health and safety. [L32/C1]
- I strongly urge the Lake Whatcom Landscape Committee to adopt Alternative 4. This is the only alternative which would help to protect our precious source of drinking water. It's obvious that Alternative 3 would generate a comparatively small increase in revenue when compared to Alternative 4. I recommend that every stream be ensured a very large buffer area to protect fish and wildlife in addition to guaranteeing clean water. [L33/C1 & C5]

- After attending your scoping meetings for the past four years I'm convinced that Alternative 4 will allow the best protection for Lake Whatcom. [L34/C1]
- I choose Alternative 4. Maintaining old mature forests in our water supply will help stabilize soils and produce a lower risk of landslides. I'm for 200+ foot buffers on all streams that flow into Lake Whatcom. I'm for 200-year rotations. [L34/C3].
- We must start protecting our water supply NOW! Only the strongest measure will work and that is Alternative 4. [L35/C1]
- I recommend that the Lake Whatcom Landscape Committee choose Alternative 4 because this is definitely the best choice to guarantee our community a source of fresh, clean water. Alternative 4 would not result in landslides, a very real threat to our homes, roads and bridges. Our valuable wetlands as well as fish and wildlife would greatly benefit too... All streams should have extensive buffers with no cutting to preserve the quality of our water as well as fish habitat. I implore you to NOT clearcut, build NO roads and use NO chemicals. [L37/C2 & C3]
- Alternative 2 should be considered as the 'bare minimum' approach to accomplishing these two objectives. However, the watershed requires protection of streams, riparian areas, unstable slopes and wetlands. DNR needs to give high priority to forest management that best guarantees this will occur... Recognizing it's important that these lands remain as Forest Board and Common School Trust lands, I urge you to select as many of the provisions in Alternative 4 that further define Alternative 2 to protect the watershed and guarantee the lands will remain under DNR management. [L38/C3&C5]
- I strongly recommend Alternative 4 as it fully minimizes the public health and safety risk involved with landslides. I have always believed our health and public safety should take precedence over trust revenue. [L40/C1]
- Alternative 4 allows the potential for an old forest, the fullest protection of streams and as you state in your PDEIS, will further eliminate the risk of landslides. [L40/C2]
- ...I am choosing Alternative 4. This is without a doubt the most protective alternative, and it will still allow you to manage these lands. ...the majority of the land in the watershed is unstable. Therefore, Alternative 4 seems to best protect the unstable areas, the streams and wetlands to the fullest potential. [L41/C1]
- Recommend alternative 4... would prevent costly landslides caused by timber cutting and preserve our drinking water supply. [L44/C1]
- ... I am convinced that alternative 4 is the choice I want... will prevent the onset of landslides and preserve our drinking water supply.... [L45/C1]
- I have spoken to several constituents [of Whatcom County Council member] regarding their thoughts and preferences pertaining to DNR's PDEIS, and there seems to be an overwhelming preference for Alternative 4. I too feel this is our only viable choice.... The geography of Lake

Whatcom is also rather precarious when it comes to slope stability, therefore we would urge you to proceed with great caution regarding the use of new roads, clear-cutting, and any hazardous chemicals that may end up leaching or flowing into Lake Whatcom. There won't be an opportunity to "fix" something, if any one of these issues occurs.... Clearly, alternative four would respect the spirit of E2SSB 6731, and it is the best option for meeting your needs and the needs of the citizens of Whatcom County. **[L52/C1, C2 & C3]**

- ...I am choosing alternative 4... I truly believe this alternative will afford the utmost protection necessary to insure preservation of our drinking water. I also believe it will greatly reduce the risk for serious landslides....That is the absolute most important factor in all the monetary and environmental factors you're analyzing. **[L53/C1]**
- Select for further study Alternative 4 that is fully protective of clean water and public safety in the Lake Whatcom watershed....The streams, unstable slopes and wetlands, all should have buffers where no trees are cut. Please choose to limit potential impacts ... no new roads, no clearcuts, no chemicals. Let the old growth forest develop for future generations to enjoy. **[L55/C1 & C3]**
- I am most comfortable with Alternative 4 or minor variations of it. **[L60a/C5]**
- I favor the strongest protection of our drinking water and public safety. I urge you to select Alternative 4. **[L60b/C7]**
- The more we protect and preserve our watershed, our water sources, the healthier our future will be. Alternative 4 provides maximum protection for streams and riparian zones with a minimum impact from road construction and chemical application. **[L60c/C1]**
- As a concerned citizen of Glenhaven, I've been very concerned about the logging on Lookout Mountain and it's impact on our community... After very careful consideration, I believe that Plan 4 [Alternative 4] offers the best protection to the Lake Whatcom watershed and to the aquifer that feeds the Glenhaven community wells. If we lose our water supply, our community will be devastated, and without a remedy to replace it.
The DNR has a responsibility and a mandate from the legislature to protect drinking water in the Lake Whatcom watershed and to protect the neighborhoods adjacent to DNR lands from landslides and debris torrents caused by logging practices. Our review of the alternatives presented indicates that the only alternatives that achieve this directive are Alternative 4 and Alternative 5. Despite statements to the contrary in the PDEIS, Alternatives 1, 2, and 3 are non-viable because they do not meet the legislative directive. Assertions to the contrary are not well supported by scientific information and contradict well-established scientific literature. Draft environmental review documents should carefully examine current scientific record and present the scientific basis for assertions presented in the documents. **[EM3/C1 & EM16/C2]**
- The legislative intent was to protect public safety and Page 25 of the PDEIS states that the Department has adopted the following objective: Objective 1: Ensure no significant risk to public health, safety and resources, and tribal archaeological and cultural resources from forest management related mass-wasting events. We ask that DNR select an alternative that meets that

high standard... We ask that the risk of landslides should not merely be minimized or reduced... We ask that DNR adopt an alternative that ensures no significant risk to public health, safety and resources from logging related mass wasting. As laid out below, the only alternatives that accomplish this are Alternatives 4 and 5. [EM16/C10]

- *Alternative 4:* Alternative 4 reduces the risk of landslides further by prohibiting any timber harvest on potentially unstable slopes. There is abundant scientific rationale for such a prohibition. It also takes a more conservative approach to roads in the watershed which is likely to have less impact on slope stability. Alternative 4 further reduces the risk of slope failures by treating all high hazard roads and orphaned roads. In addition to not causing further harm, DNR must also work to reduce ongoing risks caused by past practices. Page 99 of the PDEIS states that orphaned forest roads were the primary triggering mechanism for most of the landslides that occurred during the 1983 event. It appears that DNR understands the long-term impacts of old roads – it is time to act on that knowledge. We ask that all orphaned and high hazard roads be treated within 2 years of adopting the landscape plan. [EM16/C16]
- *Alternative 4:* Alternative 4 allows timber harvest while significantly lowering the risk of mass wasting and impacts to drinking water. No harvest nor road construction should occur on unstable or potentially unstable slopes in order to protect public safety and the quality of drinking water, unless a body of scientific evidence demonstrates that it can be done safely. Clearcuts contribute to mass wasting and eliminating clearcuts leads to increased protection – there is ample justification for such a restriction in the scientific literature. The PDEIS (page 245) states that “The cumulative impacts from implementation of this alternative would be much reduced from Alternative 1, but would be only minimally different from Alternative 2 or 3.” However, the PDEIS (page 245) also states that “impacts from rain-on-snow induced instability due to increases in soil-water would be essentially eliminated since regeneration harvesting would not be occurring.” Those two statements are inconsistent and the first statement is not accurate. Rain-on-snow events on clearcuts or partial cuts are a key trigger for mass-wasting. Essentially eliminating rain-on-snow induced instability is a significant improvement over Alternatives 2 and 3. Alternative 4 also lowers the increase of water yield and peak flows which is an important part of delivering clean water downstream to Lake Whatcom. Paving the roads at stream crossings is a good idea for sediment reduction. Alternative 4 “will significantly reduce the sediment contribution from roads” (PDEIS p. 246) providing for cleaner water. Prohibiting chemicals in a drinking water reservoir is sensible and supportable. Removing existing roads is an essential step. Old logging roads contribute to mass wasting and treating old logging roads is a sensible and necessary action. [EM16/C29]
- Alternatives 3 and particularly 4 and 5 will result in significantly improved habitat for fish and wildlife in the Lake Whatcom watershed. Streams will be cleaner with better spawning gravel for native kokanee and the riparian areas will provide a more diverse habitat for a number of creatures. It will move from being a monoculture to being a diverse, older forest that supports a healthier wildlife population. [EM16/C32]
- The alternative you choose should, at a minimum, comply with the directive of E2SSB 6731 to protect clean drinking water and public safety. Every element of the landscape plan should be backed by well-established, current science. We ask that the DNR move Alternative 4 and

Alternative 5 forward for further study. Other Alternatives should not receive further scrutiny as they do not meet the objectives. [EM16/C42]

- The PDEIS states as Objective 1: “*ensure no significant risk to public, health, safety and resources, and tribal archaeological and cultural resources from forest management related mass-wasting events.*” This is a high standard. Alternatives 1, 2 and 3 fall short of meeting that and other objectives. Only Alternative 4 and Alternative 5 meet that standard. Only Alternative 4 and Alternative 5 meet the legislative intent of protecting public safety and a municipal drinking water reservoir. [EM16/C43]
- ... select Alternative 4, the alternative offered that best protects clean water and public safety in the Lake Whatcom watershed. [EM19/C1]
- *Prefers 3, 4, or 5:* I am a Cherokee student at Northwest Indian College and have concerns about cultural resources in the Lake Whatcom area... I ... am writing to encourage the DNR to strongly consider options [Alternatives] 3, 4 and 5 for the management plan. [EM22/C1]
- Of the alternatives that you presented, I am in favor of Alternative 4, as a compromise, however, this will not be beneficial to the timber industry and may not be economically feasible to any loggers on such a limited basis. [EM23/C3]
- *Prefers Alternative 4 or 5:* I am a firm believer in the precautionary principle of ecosystem management. Given the uncertainties and the importance of the Lake Whatcom watershed as the sole water supply for some 100,000 people I feel that it would be very foolish to harvest significant amounts of timber from the DNR lands in the watershed. Of the alternatives presented, I feel that Alternatives 4 and 5 provide the best chance of safeguarding the watershed. [EM27/C11]
- *Prefers Alternative 4 or 5:* Alternatives 1-3 suggest logging as a method of gathering income from the State Trust Land. Yet making the roads that are necessary for this practice will adversely affect the riparian zones by the increase of sediments flowing into the streams. Not only will sediments increase, but the rains will flush the chemicals that are used in logging practices into the water supply.... Given these alternatives Alternative 4 and 5 appear to be the safest. In the PDEIS handbook the number one objective was to “Ensure no significant risk to public health, safety and resources”. From my research I find that various applications of Alternatives 1-3 will cause significant risk not only to humans, but to the environment that we live in and the animals and plants we eat as well. [EM26/C4 & C5]
- I want to drink CLEAN UNCONTAMINATED WATER. Vote 4 and 5. NO PESTICIDES. NO INSECTICIDES. NO LOGGING IN OUR DRINKING WATER PLEASE [CC5/C1]
- I would rather drink clean water and have fish to eat that is healthy than have insecticides and pesticides and logging occurring in the forest. I would vote for Alternative 4 or/and 5 if there was a vote. [CC7/C1]

- Water quality is paramount – since this is our watershed. Therefore, Alternatives 4 and 5 are the only two that can be used. [CC13/C1]
- The speaker is disappointed that Alternative 5 did not go further on the continuum. The speaker likes Alternative 4. [PM44]

GA5 *Favor Alternative 5:*

- I believe Alternative 5 should be implemented. [L5/C1]
- Only Alternative 5 truly protects drinking water. The PDEIS indicates this alternative will not be considered without viable funding mechanisms associated with it. Any damage to our drinking water supply will cost much more in the long haul than the pittance of revenue decrease proposed in Alternative 5. Costs to citizens of our community, and to the State, will skyrocket with the need for increased treatment, either of the water or people who may become ill from detrimental effects of logging the trees. If you can't connect the dots on this point, I'll go ahead and concede that Alternative 4 is the only other acceptable proposal. [L29/C2]
- While it drastically affects the revenue potential of DNR managed lands in the watershed, Alternative 5 does appear to provide the forest management provisions required to protect drinking water and protects fish and wildlife habitat urged by WDFW. I urge you to select Alternative 5. [L38/C4]
- I am writing in support of Alternative 5... no timber sales on state lands in a watershed that effects the drinking water supply for 80,000 people... These lands should be managed as a "watershed preserve"...Cease the cutting of timber in the watershed and drinking water will increase in quantity and improve in quality. [L43/C1 &C2]
- I'm writing in support of Alternative 5. Clean water, a basic human need, should take precedence over the funding of public institutions, and Alternative 5 accomplishes this directly. [L46/C1]
- ...I have no other recourse but to plead for Alternative 5... Protect our water and select Alternative 5. [L50/C1]
- Going beyond all quantifiable and unquantifiable values expressed thus far leads to the nature of intrinsic value. The biological diversity of the Lake Whatcom watershed is inherently valuable in and of itself regardless of any anthropocentric or human-derived value. ... If for no other reason than the fact that it exists, biodiversity is a valuable component within our watershed that deserves acknowledgement and protection. In light of the value within biological diversity, I would like to offer my support for a forest restoration approach to watershed management that shifts the focus from the generation of revenue to the generation of additional values ... [EM6/C8]
- On behalf of the people I serve I am in favor of Alternative 5. No clearcutting in our watershed. Please, this lake is the only body of water that we can count on for clean water for our children

and grandchildren. I serve over 81,000 people here in Bellingham and they are saying loud & clear “NO CLEAR CUTTING IN OUR WATERSHED!!!” [EM7/C1]

- I have tried to familiarize myself with the function of the DNR and understand that it is necessary to utilize our state lands in a way that is both profitable to the state and local governments and safe for the citizens and businesses that are in the areas that are affected by the DNR's decisions.... I am very concerned about any potential danger to our source of drinking water and am writing to ask the DNR to please strongly consider the use of Alternative 5 when making their decisions concerning the landscape plan for this area. [EM10/C1]
- The DNR has a responsibility and a mandate from the legislature to protect drinking water in the Lake Whatcom watershed and to protect the neighborhoods adjacent to DNR lands from landslides and debris torrents caused by logging practices. Our review of the alternatives presented indicates that the only alternatives that achieve this directive are Alternative 4 and Alternative 5. Despite statements to the contrary in the PDEIS, Alternatives 1, 2, and 3 are non-viable because they do not meet the legislative directive. Assertions to the contrary are not well supported by scientific information and contradict well-established scientific literature. Draft environmental review documents should carefully examine current scientific record and present the scientific basis for assertions presented in the documents. [EM16/C2]
- We ask that DNR adopt an alternative that ensures no significant risk to public health, safety and resources from logging related mass wasting. As laid out below, the only alternatives that accomplish this are Alternatives 4 and 5. *Alternative 5*: Alternative 5 meets the stated objective by ensuring no significant risk to public, health, safety and resources. There is scientific rationale to adopt Alternative 5. [EM16/C17]
- *Alternative 5*: Alternative 5 would provide a significant contribution to water quality in the Lake Whatcom watershed and would meet the stated water quality objectives. [EM16/C30]
- Alternatives 3 and particularly 4 and 5 will result in significantly improved habitat for fish and wildlife in the Lake Whatcom watershed. Streams will be cleaner with better spawning gravel for native kokanee and the riparian areas will provide a more diverse habitat for a number of creatures. It will move from being a monoculture to being a diverse, older forest that supports a healthier wildlife population. [EM16/C32]
- The alternative you choose should, at a minimum, comply with the directive of E2SSB 6731 to protect clean drinking water and public safety. Every element of the landscape plan should be backed by well-established, current science. We ask that the DNR move Alternative 4 and Alternative 5 forward for further study. Other Alternatives should not receive further scrutiny as they do not meet the objectives. [EM16/C42]
- The PDEIS states as Objective 1: “*ensure no significant risk to public health, safety and resources, and tribal archaeological and cultural resources from forest management related mass-wasting events.*” This is a high standard. Alternatives 1, 2 and 3 fall short of meeting that and other objectives. Only Alternative 4 and Alternative 5 meet that standard. Only Alternative

4 and Alternative 5 meet the legislative intent of protecting public safety and a municipal drinking water reservoir. [EM16/C43]

- *Prefers 3, 4, or 5:* I am a Cherokee student at Northwest Indian College and have concerns about cultural resources in the Lake Whatcom area... writing to encourage the DNR to strongly consider options [Alternatives] 3, 4 and 5 for the management plan.... [EM22/C1]
- *Prefers Alt 4 or 5.* Alternatives 1-3 suggest logging as a method of gathering income from the State Land Trust. Yet making the roads that are necessary for this practice will adversely affect the riparian zones by the increase of sediments flowing into the streams. Not only will sediments increase, but the rains will flush the chemicals that are used in logging practices into the water supply.... Given these alternatives Alternative 4 and 5 appear to be the safest. In the PDEIS handbook the number one objective was to “Ensure no significant risk to public, health, safety and resources”. From my research I find that various applications of Alternatives 1-3 will cause significant risk not only to humans, but to the environment that we live in and the animals and plants we eat as well. [EM26/C4 & C5]
- *Prefers 4 or 5:* I am a firm believer in the precautionary principle of ecosystem management... Of the alternatives presented, I feel that Alternatives 4 and 5 provide the best chance of safeguarding the watershed. [EM27/C11]
- *Prefers 4 or 5:* I want to drink CLEAN UNCONTAMINATED WATER. Vote 4 and 5. NO PESTICIDES. NO INSECTICIDES. NO LOGGING IN OUR DRINKING WATER. [CC5/C1]
- *Prefers 4 or 5:* I would rather drink clean water and have fish to eat that is healthy than have insecticides and pesticides and logging occurring in the forest. I would vote for Alternative 4 or/and 5 if there was a vote. [CC7/C1]
- For a relatively minor amount of monetary return, DNR is willing to potentially compromise the safety and water quality for the public residing in the Lake Whatcom watershed. Alternative 5 is the only logical alternative to present to the Board of Natural Resources. [CC8/C1]
- I would only consider option [Alternative] 4 or 5. If 5 is from comments from the public, who own the land, this is the one that should be passed. [CC12/C1]

Response: Alternative 5 was developed as a restoration alternative by the DNR Lake Whatcom Landscape Planning Committee for comparative analysis purposes.

- Water quality is paramount – since this is our watershed. Therefore, Alternatives 4 and 5 are the only two that can be used. [CC13/C1]
- Alternative 5 is the choice that protects Lake Whatcom watershed and I appreciate seeing the DNR and local citizens working together. I do not want any logging in the Lake Whatcom watershed. [CC14/C1]

- Alternative 5 – protect our water, air and natural resources as much as possible.... This is the third meeting that the public has told you NO CLEAR CUTTING. Why can't you understand that?.... The best and only alternative acceptable to me as a resident of the watershed and user of the Lake is Alternative 5... [CC15/C1, 2 & 3]

GA6 Other Alternatives Should Be Considered

GA6a As similar to Alternative 1 as possible, but with more flexibility, producing more revenue while using water quality protections that already exist

- With the five alternatives presented, the BNR should be encouraged to stop and start over. A committee of experts in forest and watershed management should be assembled to come up with a plan that has more flexibility, produces more revenue for the trusts, and continues water quality protections already in place. It seems obvious the committee lacked enough professional expertise to do the job. The preferred alternative should be one that looks as close to number 1 as possible. [L11/C1]
- An EIS Alternative that maximizes trust revenues while maintaining current resource protections should be added. [L59/C1]

GA6b Analyze a divestiture alternative.

- An EIS alternative is needed that evaluates partial or total divestiture (or repositioning) of trust lands to assets outside the Lake Whatcom watershed. It should specifically describe and analyze asset divestiture. [L59/C4]

GA6c Alternatives from the sustainable yield process

- The PDEIS fails to link with DNR's on-going sustainable yield process as required by E2SSB 6731.... The PDEIS alternatives do not match the seven different alternatives presently being considered by the Board of Natural Resources for all other state lands in western Washington... EIS alternatives should be consistent with SHC alternatives... [L59/C11]

Response: The statute creates three tests that must be met simultaneously. Subsection (4) says that we are to create "a sustained yield model specific to Lake Whatcom" and the landscape plan shall encompass "the revised management standards" of the DNR landscape plan and "that it is to be consistent with the sustained yield established by the Board of Natural Resources..." Because the site-specific nature of the Lake Whatcom Landscape Plan is unique to the physical and legal facts surrounding the watershed, it is not possible to use any of the published alternatives associated with the larger sustained yield modeling effort applicable to some 1.4 million acres. By using the same analytical processes, same growth and yield functions and other policy constraints of the western Washington model and adapting them to the specifics of Lake Whatcom, we feel that all three tests have been met.

- The Lake Whatcom Plans are not consistent with the DNR Sustainable Harvest Calculation Alternatives. Even DNR's current effort to determine the sustainable harvest level for DNR

lands is attempting to evaluate alternatives much like those developed in these studies. Alternatives like these are conspicuously missing in the Lake Whatcom planning alternatives. The alternative plans erroneously assume that no-management provides the best pathway for habitat conservation... The plans being considered are not in the best interest of the trust beneficiaries because they do not include a search for better economic alternatives. They are also seriously lacking in metrics that can provide useful measures of environmental protection. It would be far better to wait for the results of the current DNR sustainable harvest level strategic analysis process to determine best strategies than lock in any of the current Lake Whatcom Alternatives. (*also see attachment "Summary of Analysis Demonstration of Trust Impacts from Management Alternatives to Achieve Habitat Objectives on DNR Managed Lands."*) [L61/C2]

Response: As trustee, the legislature set certain standards that are unique to Lake Whatcom. The standards were memorialized in E2SSB 6731 as expressed in 2000 Washington Laws Chapter 205. Substantial concerns about public safety and water quality were major considerations that colored the content of the bill. The alternatives show an array of management intensities, ranging from restoration to more active management. The legislation calls for DNR to develop a plan that considers all inputs, whether from the public, beneficiaries, the Lake Whatcom Advisory Committee or other sources. The final plan will be subject to the Board of Natural Resources approval. The Board will evaluate the appropriate policy balance of the plan, given the legal and physical facts unique to Lake Whatcom.

The department believes that working landscapes provide benefits to the people of Washington that are not found in single purpose lands.

GA6d "Active management alternatives"

- Active management alternatives are conspicuously missing from the Lake Whatcom alternatives.... The methodology for managing lands for environmental values while also producing revenue for trust beneficiaries has been well documented by our study using principals developed in the Washington Forest Landscape Management Project (Carey et al, 1996, Cary et al 1999). I have attached a summary fact sheet on our early analysis of the DNR HCP that provides the results of a series of sensitivity runs to better understand the difference between management alternatives and largely land preservation approaches. We found management pathways that could achieve higher habitat suitability indicators than the DNR HCP plan with an economic loss of only 20 percent, incorporating active management for habitat protection and restoration objectives. [L61/C1]

GA6e Position between Alternative 1 and Alternative 2

- I believe there is a middle ground between Alternatives 1 and 2 that should be considered. [EM?/C3]

GA6f Lake Tahoe example

- In my various travels throughout the United States, I have been most impressed by the manner in which the forests and watershed areas surrounding Lake Tahoe are managed. I believe

Washington State should look at this as a “blueprint” for managing forest lands in Washington. [EM23/C6]

GA6g *Turn it all into a state or federal park*

- My personal opinion is that this entire property should be turned into a State or National Park limited to DAY use only. Picnic facilities (without cooking facilities), hiking trails and stream fishing would be permitted. Parking facilities would be off of existing logging roads, which would require improvement, however, no new roads would be constructed. Hiking trails would be improved/created by the park rangers. Only self contained restroom facilities would be provided for public use throughout the park, which would blend into the environment. The only structure that I would envision being built inside the park would be for the use of the park rangers, including an exhibit area and auditorium where the rangers could teach the population, young and old, about the environment and the different species of plants and animals native to the area. This is the only facility that would be allowed to have a septic system. One will argue that the expenses associated with such a conversion would be prohibitive. I submit that the increased revenues that the merchants of Whatcom County and the County itself would derive from tourism would far outweigh the expenses after the initial establishment. The park could also generate a limited amount of revenue by charging daily use fees or selling annual passes. [EM23/C10]

GA6h *Research area*

- As of yet the only solution I have to keep this area from being developed and or logged extensively is to make this area into a Research Area. It may not accrue a great deal of revenue, but most people in Bellingham I know would rather drink healthy water and eat healthy viable salmon. [EM26/C7]

GA7 *How the range of alternatives is presented*

GA7a *Alternative 1 should be shown as “the middle of the road”*

- I have a concern with how the five alternatives were presented. They’re biased against all the research and work already accomplished for DNR management in the watershed, as represented by Alternative 1. If Alternative 5 is an option, then Alternative 1 should have been the biological growth capacity. The presented Alt. 1 should really represent a middle of the road option and be represented as Alternative 3. Any of the proposed alternatives other than Alternative 1 gives the DNR little flexibility to manage trust lands for the benefit of the trusts or the watershed ecosystem. [L30/C2]

GA7b *Baseline alternative – Alternative 1 is not true “no action” baseline*

- *Baseline alternatives* – The use of Alternative 1 as the baseline condition for the EIS may not be appropriate under SEPA rules.....should probably be the alternative that reflects the laws and actual field practices that were in effect at the time of initiation of the EIS. [L58/C3]

- PDEIS Alternative 1 (No Action Alternative) is inaccurately described and is not the true No-Action alternative... Alternative 1 appears to have been developed consistent with the 12 PDEIS management objectives... Furthermore, the DNR Westside Tier 3 SHC Alternative does not contain these same management objectives... A new Alternative 1 should be developed that truly reflects current (no action) conditions. [L59/C19]
- WEC is concerned that DNR is proposing to use “Tier 3” as the No Action alternative, when Tier 3 does not represent DNR’s current forestry procedures. We have attached a chart detailing ways in which the August 1, 2002 Tier 3 modeling assumptions differ from the Forest Resource Plan, HCP and/or current procedures, and thus cannot serve as the basis for the No Action alternative required in the EIS... We raised similar concerns in the context of the sustainable harvest calculation, and it appears that DNR is attempting to answer those concerns with a No Action alternative that models current practices, and a separate alternative (Alternative 1) that includes policy or procedure changes proposed by the department, but not yet enacted. Please see our April 10, 2002 SEPA scoping comments on the westside sustainable harvest calculation for further discussion of the legal requirement for a No Action alternative that accurately represents the Department’s current management... WEC Analysis of the 8-1-02 Tier 3 Modeling Assumptions: Many differ from Forest Resource Plan, HCP, or current procedures, and thus Tier 3 cannot be the *no action alternative* for the Lake Whatcom PDEIS.....[See list of items in the full comment on the DNR website, www.wa.gov/dnr .] [EM24/C2]
- Why are we taking the time to consider the “no action” alternative? It’s illegal. [PM6]

Response: DNR agrees that “Tier 3” in the sustainable harvest calculation process is different than Alternative 1. Alternative 1 represents DNR’s current practices, which include existing policies, procedures, legal requirements and management commitments and is presented for comparison purposes. The reference to “Tier 3” will be removed from the description of the No Action alternative in the DEIS. Please note that the sustainable harvest calculation process has progressed beyond the use of the term “Tier 3” as well.

GA7c *Alternatives fail to balance social, economic, environmental values*

- Current PDEIS Alternatives fail to balance social, economic and environmental values, a stated goal of the Board of Natural Resources. [L59/C5]

GA7d *Alternatives “unreasonable in their range”*

- Under the *Prudent Person Doctrine* of the *Trust Mandate* (1992 Forest Resource Plan), it must be asked what additional benefits accrue to either the trusts or public from even analyzing (or contemplating) alternatives that fail a reasonable cost vs. benefit analysis, and that are clearly adverse to the economic interest of the trust beneficiaries?... PDEIS Alternatives 3-5 are “unreasonable in their range” under SEPA, and violate the prudent person doctrine. New alternatives must be developed to comply with the trust mandate, the prudent person doctrine, SEPA and legislative instructions. [L59/C9]

Response: As previously stated in response to comment [L59/C12], DNR and the Board of Natural Resources are aware of their fiduciary obligations to the trusts whose land is at issue in the Lake Whatcom watershed. At the same time, DNR must comply with validly enacted laws, such as E2SSB 6731. DNR and the Board must be mindful of their fiduciary obligations and attempt to harmonize as much as possible the Lake Whatcom legislation with these obligations. As we proceed through the next steps in the SEPA process, including the DEIS and FEIS, DNR will continue to evaluate the range of alternatives to ensure that they are all reasonable and capable of being achieved. If implementing the preferred alternative would reduce trust income by restricting management of the trust assets, the trusts would have to be compensated.

- In the PDEIS summary, it says “...while preserving economic viability...for trust beneficiaries...” Alternatives 1 and 5 are not possible for achieving that so there is a concern about their legality. [PM7]

GA8 *Statements or areas of PDEIS commenters found ambiguous or unclear*

- Alternatives 2-5 appear to provide increased aquatic resource protection from management activities. However, some statements are ambiguous. (*see specifics in letter*).... We recommend that these ambiguities are made clear in the DEIS. [L58/C5]

Response: These statements will be examined by analysts and clarified in the DEIS.

- *RMZs* - In fish streams, alternatives 1 and 2 provide riparian buffers as described in DNR’s HCP. However, harvest is allowed in these alternatives under guidelines that are still under development. Under these alternatives, it is unclear how riparian functions and aquatic resources will be protected. [L58/C7a]
- Hardwood stands (page 72) – it is unclear how DNR intends to manage for hardwood stands in Lake Whatcom. We would like clarification on what species and what percent will be managed for under the different alternatives and how hardwood composition on adjacent ownerships will this affect the watershed as a whole under the different alternatives. [L58/C10]

Response: As a member of the Hardwood Silviculture Cooperative, DNR is closely involved in efforts to improve the understanding, management, and production of red alder. It is the intent of DNR to manage for alder on appropriate sites within the watershed, e.g., areas on appropriate soils, at suitable elevations, and not subject to extremes in temperature and wind. Identification of these sites is not likely to occur until management strategies are adopted for the watershed. Probabilities of success will be increased if sites, spacing, and rotation lengths are selected to emphasize benefits and minimize problems associated with inherent growth traits of the species. Opportunities for alder management would be highest under those alternatives permitting even-aged harvests and reduced levels of retention trees. Consideration of forest composition on lands outside of DNR control is beyond the scope of the PDEIS and DEIS.

- *Adverse effects of timber harvest on unstable slopes* (page 96) – It is unclear whether the statement “To date, timber harvest has had no adverse effects on areas mapped as potentially

unstable slopes” applies to historic timber harvesting in the watershed. We request that more information be provided on how this analysis was conducted. [L58/C12]

Response: All timber harvesting in the watershed has occurred during the past approximately 100 years; it is considered “historic.” This statement is based on information in the Watershed Analysis Mass Wasting report, and on the definition of unstable vs. potentially unstable slopes developed for the Lake Whatcom Planning Area.

- *Unstable slopes on maps are exaggerated* - I feel that the unstable areas mapped in Alternatives 2-5 are over exaggerated. These areas need to be ground-proven before they are put on the map; once they are published they never are changed. They may be added to but not reduced. History has proven that. [EM8/C6]

Response: The areal extent and acreage of unstable and potentially unstable slopes shown on the maps are likely not totally accurate. We agree that – ideally – the information on the maps should have been verified through on-site evaluation; however, for broad-scale planning purposes that is not practical. On-site delineation of unstable and potentially unstable slopes will occur during operational-level planning. As a result of that process, more or less acreage than is indicated on the map may fall into a given slope stability category. The final location and design of road construction and timber harvest proposals will be based on field-verified, site-specific slope stability conditions.

GA9 *Proposed changes to Alternative 1 and requests for further studies or rationale*

GA9a

- *Alternative 1:* This alternative, using existing Forests and Fish rules and the HCP, allows clearcut timber harvests on unstable and potentially unstable slopes and it allows some 60 miles of new roads to be constructed. While the PDEIS states: “no probable significant impacts to slope stability are expected from harvest activities under this alternative” we find that to be an extraordinary claim and find no supporting evidence. (See discussion points in letter) We ask that DNR cite the studies that document and support the claims in Alternative 1. [EM16/C11]

Response: In total, activities on 4471 acres (28.5 percent) of the watershed are “... specially constrained by management strategies ...” under Alternative 1. Included in this acreage are all high and moderate hazard areas identified by the Watershed Analysis Mass Wasting report, plus additional acres identified in the “Slope Stability Assessment” as being potentially unstable. The rationale for the conclusion of “no probable significant impacts” is discussed on pages 152 – 196, Chapter 4, PDEIS.

GA9b

- *Alternative 1:* Steep slopes above neighborhoods and along streams leading to a municipal drinking water supply are not places to experiment with new rules that are not supported by scientific literature. We find this alternative to be inconsistent with the stated objective and with the letter and the intent of the legislation as Alternative 1 puts public safety and resources at risk of mass wasting caused by logging practices.....We ask that DNR provide justification for the watershed analysis prescriptions for Lake Whatcom. [EM16/C12]

Response: The Watershed Analysis reports and Prescriptions are part of a Forest Practices regulatory process that is completely separate from, and independent of, the Lake Whatcom Landscape Plan. Justification for individual Prescriptions is contained in the Watershed Analysis reports. Both Watershed Analysis report/Prescription documents pertinent to the Planning Area were peer-reviewed and passed through the State Environmental Policy Act (SEPA) review/approval process.

GA9c

- *Alternative 1:* Cumulative effects are ignored by Alternative 1 and the causes of past debris torrent events on DNR land in the watershed are not examined. Page 94 of the PDEIS references the 1983 debris flow events. These events deserve much more careful treatment, particularly regarding the cause. According to newspaper articles from the time, the debris flow events were caused by past DNR logging practices. In fact, the City of Bellingham took DNR to court, the court found DNR responsible, and billed DNR \$5 million to offset the clean-up costs the city faced. Not included in that cost are the costs of damage to residents, roads and other infrastructure, the costs of civil cases, if any and legal costs borne by the state in DNR's defense. It is correct to state that it can take years for the impacts of forest practices to play out on the ground. Many of the prescriptions proposed are untested, experimental and lack scientific rationale. Additionally, the combination of effects are unexamined, for example logging will produce more sediments and more groundwater and those two effects may have a larger combined impact. We ask that DNR examine the cumulative effects for the alternatives which are selected for further study. [EM16/C13]

Response: This comment focuses upon adverse effects from logging practices that occurred 20 years ago. Forestry regulation and practices have changed dramatically over the past 20 years. Respectfully, the real issue is not what happened 20 years ago, but rather, what are the likely effects of forestry activities conducted under the parameters of the various alternatives. The cumulative impacts of these alternatives are being considered actively in this EIS, and were directly addressed in the Watershed Analysis conducted in 1997, which considered the cumulative effects of forestry activities occurring on private lands in addition to state lands.

GA9d

- *Alternative 1:* Both the HCP and the recent changes to Forest Practice rules were designed to meet the needs of endangered species such as spotted owls and anadromous fish, rather than the high standards required to protect a municipal drinking water reservoir. Additionally, Forests and Fish and the Watershed Analysis program have, as their goal, maintaining a viable forest products industry. That objective pales when measured against the need to protect public safety and drinking water. While sediment levels, stream temperature and nutrient levels may improve somewhat under the new rules, there is reason to believe they will not improve sufficiently to meet the objectives for drinking water. Quite simply, that's a higher standard and, given that Lake Whatcom is the sole source of drinking water for half of Whatcom County, that's not something we can gamble with. DNR forest lands must be managed in such a way that they will deliver clean water to Lake Whatcom. Alternative 1 doesn't do that. Alternative 1 allows road construction on unstable slopes, despite evidence that erosion will be increased and landslides can be triggered. Alternative 1 allows orphaned roads to remain. Alternative 1 allows aerial

spraying of chemicals in a drinking water reservoir. The PDEIS (p. 157) states that under Alternative 1 introduction of sediment into surface waters is unavoidable and that increases in nutrient concentrations from timber removal cannot be prevented. Since DNR manages half the Lake Whatcom watershed and since it is anticipated that 89 acres of clearcuts and 47 acres of thinning will occur each year, those introductions and increases add up to a significant negative impact over the landscape.

Alternative 1 provides no buffers for type 5 streams. How many miles of unbuffered type 5 streams are there in the planning area? Without buffers, disturbed soils near type 5 streams will deliver sediment, unfiltered, to the lake. For a drinking water reservoir, all streams must be buffered in order to deliver clean drinking water. Those buffers also provide some benefit to wetlands – an important part of water quality in the lake - and they lower the temperature in streams.

As the PDEIS states (p. 156), when impacts occur from timber harvesting, they are often long-term and cumulative. Examination of the complex interaction of cumulative effects has not taken place for these 15,657 acres, and this examination is necessary. The PDEIS states (p. 157) that Alternative 1 does not have probable, significant adverse impacts yet no scientific rationale for that statement can be found in the PDEIS. In fact the PDEIS states: “some introduction of sediment from roads into surface waters is unavoidable. This is especially true for existing roads. It also is difficult to prevent all sediment entry when constructing stream crossings. Increases in nutrient concentrations resulting from timber removal cannot be prevented.” (PDEIS p. 157) We ask that you provide evidence of independent studies that reach the conclusions of Alternative 1 that the cumulative effects of those actions will not have probable, significant adverse impacts. [EM16/C24]

Response: Comment noted. In total, activities on 4,471 acres (28.5 percent) of the watershed are “... specially constrained by management strategies ...” under Alternative 1. Included in this acreage are all high and moderate hazard areas identified by the Watershed Analysis Mass Wasting report, plus additional acres identified in the “Slope Stability Assessment” as being potentially unstable. The rationale for the conclusion of “no probable significant impacts” is discussed on pages 152 – 196, Chapter 4, PDEIS. Analysts will be asked to provide the number of miles of unbuffered streams Type 5 under Alternative 1 in the DEIS. DNR believes that cumulative effects interactions have been examined through Watershed Analysis.

GA9e

- You state that conditions should actually improve over time. We remind DNR that past practices led to catastrophic debris flows – it would be difficult to do worse. In the area of public water supply the PDEIS states that increases in water yield are unavoidable and increases in annual nutrient loading are unavoidable. Over the landscape, that will have a significant impact and must be avoided. That can be done by avoiding clearcut logging in the watershed. You state that Alternative 1 is unlikely to adversely affect the public water supply. Past forest practices have adversely affected the water supply yet no rationale for this statement is provided. Objectives must be more than words or goals, the citizens who drink the water and the legislators who voted for the Lake Whatcom bill all expect that those objectives will be achieved. Alternative 1 will not achieve the objectives. [EM16/C25]

GA10 *Proposed changes to Alternative 2*

GA10a

- *Roads and sediments* – Although alternatives 1 and 2 include an assessment, they do not include provisions that repair or abandon orphan roads that are risks to aquatic resources. Alternative 3 provides an acceptable means to address this risk. We recommend that Alternative 2 also include provisions to repair or abandon orphaned roads. [L58/C6]

GA10b

- Provisions that limit sediment-producing yarding activities – even on non-fish streams – significantly increase the protection for aquatic resources. We recommend inclusion of such provisions as part of Alternatives 2-4. [L58/C7b]

GA10c

- Silviculture to restore older forest conditions can be beneficial to both fish and wildlife species in cases where hardwoods have replaced conifers and where riparian ecosystems are currently comprised of young, densely stocked stands. We recommend using an adaptive management approach to experiment with and monitor the results of restoration silviculture in RMZs as part of alternatives 2-4. [L58/C7c]

Response: Adaptive management, including a variety of possible silvicultural prescriptions, is incorporated in the riparian procedure under development for the HCP.

GA10d

- *Alternative 2:* While this alternative presents less risk than alternative 1, we question whether or not this can adequately protect drinking water and public safety for the same reasons: it relies heavily on mapping that may or may not be accurate and it continues to allow clearcut timber harvest on unstable and potentially unstable slopes. The association between clearcuts and landslides on unstable slopes is well-documented (see letter from David Montgomery). This alternative will not meet the objective of ensuring that there are no landslides triggered by logging. Putting lives and resources at risk in order to harvest more timber is unacceptable to the public. [EM16/C14]

Response: Road construction and timber harvesting is not permitted on slopes defined as unstable in the Slope Stability Assessment. Timber harvesting is permitted on slopes defined as potentially unstable; however, an on-site slope stability evaluation by DNR specialists and review by the inter-jurisdictional committee is required. The locations of unstable and potentially unstable slopes shown on Maps G-1 and G-2 are intended for general planning purposes. It is recognized, and explicitly stated, that the level of detail of information on the slope stability map is inadequate for use in operational planning. Slope stability conditions will be determined on-site during operational planning by DNR specialists.

GA10e

- *Alternative 2:* The planning area is a municipal drinking watershed. The public forestlands in the watershed managed by DNR must deliver clean, filtered water to that lake. Alternative 2

buffers all streams which is an improvement over Alternative 1. Alternative 2 prohibits road construction on unstable slopes which reduces the risk of mass wasting and reduces potential sediments. However, Alternative 2 allows clearcuts and road construction on potentially unstable slopes. There is no justification for this level of risk in the scientific literature. Alternative 2 does not meet the objectives of the committee. [EM16/C26]

Response: Timber harvesting is permitted on slopes defined as potentially unstable; however, an on-site slope stability evaluation by DNR specialists and review by the inter-jurisdictional committee is required. The locations of unstable and potentially unstable slopes shown on Maps G-1 and G-2 are intended for general planning purposes. It is recognized, and explicitly stated, that the level of detail of information on the slope stability map is inadequate for use in operational planning. Slope stability conditions will be determined on-site during operational planning by DNR specialists.

GA11 *Proposed changes to Alternative 3*

GA11a

- Provisions that limit sediment-producing yarding activities – even on non-fish streams – significantly increase the protection for aquatic resources. We recommend inclusion of such provisions as part of Alternatives 2-4. [L58/C7b]

GA11b

- Silviculture to restore older forest conditions can be beneficial to both fish and wildlife species in cases where hardwoods have replaced conifers and where riparian ecosystems are currently comprised of young, densely stocked stands. We recommend using an adaptive management approach to experiment with and monitor the results of restoration silviculture in RMZs as part of alternatives 2-4. [L58/C7c]

Response: Adaptive management, including a variety of possible silvicultural prescriptions, is incorporated in the riparian procedure for the HCP.

GA11c

- *Alternative 3:* This alternative provides greater protection of unstable slopes and further reduces the risk of landslides on potentially unstable slopes. On potentially unstable slopes, over 50 percent of the trees will be retained. Is there evidence to suggest that 50 percent retention on potentially unstable slopes prevents landslides? We ask that DNR provide documentation of the level of risk associated with partial cutting. We ask that DNR provide the scientific references that demonstrate that cutting 50 percent of trees on potentially unstable slopes will ensure no landslides. [EM16/C15]
- *Alternative 3:* Water quality is seriously impacted by mass wasting and the caution that applies to harvest on unstable slopes applies here: where is the rationale for allowing 50 percent of timber to be harvested on potentially unstable slopes? What is the risk that timber harvest on potentially unstable slopes will trigger landslides? Those questions must be answered and the source referenced. We ask that you provide the scientific rationale for allowing up to 50 percent timber harvesting on potentially unstable slopes. [EM16/C27]

Response: The option under Alternative 3 to harvest part of the timber (something less than 50 percent of the tree stems) on potentially unstable slopes is based on the recognition that the mass wasting potential hazard and associated risks vary – often within short distances. The amount of timber actually harvested from a specific, potentially unstable area would be based on consideration of numerous site-specific slope stability and timber stand conditions. All activities on potentially unstable slopes require on-site evaluation by DNR specialists and review by the inter-jurisdictional committee. Experience has shown that the partial-harvest option can be implemented on some potentially unstable slopes without significantly increasing mass wasting potential.

GA12 *Proposed changes to Alternative 4*

GA12a

- Provisions that limit sediment-producing yarding activities – even on non-fish streams – significantly increase the protection for aquatic resources. We recommend inclusion of such provisions as part of Alternatives 2-4. [L58/C7b]

GA12b

- Silviculture to restore older forest conditions can be beneficial to both fish and wildlife species in cases where hardwoods have replaced conifers and where riparian ecosystems are currently comprised of young, densely stocked stands. We recommend using an adaptive management approach to experiment with and monitor the results of restoration silviculture in RMZs as part of alternatives 2-4. [L58/C7c]

Response: As stated above, adaptive management, including a variety of silvicultural prescriptions, is incorporated in the HCP riparian procedure.

GA12c

- *Alternative 4:* Alternative 4 reduces the risk of landslides further by prohibiting any timber harvest on potentially unstable slopes. There is abundant scientific rationale for such a prohibition. It also takes a more conservative approach to roads in the watershed which is likely to have less impact on slope stability. Alternative 4 further reduces the risk of slope failures by treating all high hazard roads and orphaned roads. In addition to not causing further harm, DNR must also work to reduce ongoing risks caused by past practices. Page 99 of the PDEIS states that orphaned forest roads were the primary triggering mechanism for most of the landslides that occurred during the 1983 event. It appears that DNR understands the long-term impacts of old roads – it is time to act on that knowledge. We ask that all orphaned and high hazard roads be treated within 2 years of adopting the landscape plan. [EM16/C16]

GA13 *Changes to Alternative 5*

No comments proposed changes to Alternative 5.

GA14 *General Comments*

- Lake Whatcom Management Committee (LWMC) recognizes the importance of commercial forestry to the local economy. Further, it supports the industry's efforts to be viable while

continuing practices that protect the environment and water quality....LWMC is looking for an alternative that achieves both viable forestry and water quality protection. [EM9/C3]

- Option 2 simply removes some potential road activities. Rotation age and other harvest practices are not changed. This is insufficient. Recommends options 3 or 4 be adopted. These have the additional benefit of helping to preserve cultural resources. [EM12/C3]
- *Chuckanut to Cascades Forest corridor* – State lands around Lake Whatcom provide a vital forested link between the Cascade Mountains and the saltwater of Puget Sound...North Cascades Audubon Society supports conservation of the unique forested corridor that stretches from Puget Sound to the Cascades and includes the forests of the planning area. [EM13/C11]

Response: DNR is not aware of a migration corridor within the planning area that exists for a specific species. Further consultation will occur with WDFW in an attempt to acquire more complete information about this issue as part of the DEIS. If a well-established migration route is specifically identified, DNR will consider potential impacts of its activities under each alternative.

- *Lake Whatcom Watershed Objectives:* The legislative intent for E2SSB 6731 was clear: protect drinking water quality and public safety in the Lake Whatcom watershed and the PDEIS (Vol. 1, pp 25-56) lists objectives that are consistent with legislative intent. We ask that DNR adopt an alternative that provides the strongest possible protection for drinking water quality and public safety in the Lake Whatcom watershed. [EM16/C5]
- The legislative intent is to protect drinking water and page 25 of the PDEIS states that the Department has adopted the following objectives:
Objective 2: Maintain and restore the sediment regime within the range of natural variability.
Objective 3: Protect and restore riparian and wetland habitat to sustain healthy native aquatic, wetland and riparian ecosystems.
Objective 4: Maintain and restore the forest hydraulic regime for each sub-basin, within the range of natural variability.
Objective 5: Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. We support those objectives and ask that the alternative you choose meets those standards so that drinking water is protected. [EM16/C18]
- Language should be clarified: according to an email communication from Robin Matthews, sentence #3 in 4.1.1.3, there were no estimates of percentages of water from trust lands in Matthews et al., 2002. [EM16/C19]

Response: DNR reviewed the Matthews water balance work, and based on it, calculated the estimate that state trust lands produced 35 percent of the water flowing into Lake Whatcom for water year 2001.

- DNR is correct in stating that one of the intents of the new Forest Practice rules is to improve fish habitat. Yet the primary concern with Lake Whatcom is not fish habitat, although that is one concern, but water quality in the lake. Keeping the water in Lake Whatcom cool is essential to protecting drinking water. As the lake warms, less oxygen is available. DNR's 1997

Watershed Analysis determined that only 75 percent of the forest stream miles met shade targets for maintaining temperatures. This is a concern for water quality in the lake and we ask that the alternative meet 100 percent of shade targets. [EM16/C20]

- *Preservation of cultural resources:* North Cascades Audubon Society supports the cultural resources provisions outlined in Objective 9 and 10 of Alternatives 3-5. [EM13/C1]

GA15 *Requests to include (or exclude) specific elements in the final alternative*

GA15a *Buffers:*

- Please consider buffers on wetlands and unstable slopes and windthrow buffers on all riparian management zones as part of your selected alternative. [EM16/C36]
- The alternative you choose should, at a minimum, comply with the directive of E2SSB 6731 to protect clean drinking water and public safety. Every element of the landscape plan should be backed by well-established, current science. [EM16/C42]
- Buffers should be wide enough to protect unstable areas, slopes, and any flowing water in the watershed. [EM21/C3]

GA15b *Please consider in DEIS*

- In preparing the Lake Whatcom DEIS, please include the following: No clearcuts of any sort (no even-age rotation, no overstory removal, no stand replacement, no shelterwood cuts, etc. No new road construction or reconstruction of old roads (except stabilization and restoration). A total moratorium on all new electronic (radio, cell, etc.) towers and no lease renewals. Analyze all known and suspected avian impacts from existing, and likely future, electronic towers, sites, and related facilities. Cite latest and most comprehensive studies available, incorporate information from those studies in the environmental analysis. [EM18/C1, 2, 3 & 4]

Response: DNR will consider additional or new information and/or references that can be identified regarding potential avian impacts from electronic sites. In order to conduct further analysis, consultation may occur with the WDFW or other agencies with the jurisdiction and expertise when appropriate and necessary.

GA15c *Clearcutting*

- *Clearcutting* should not be an option in any part of the watershed, nor anywhere else in our state for that matter. The environmental damage from clearcutting is too high a price to pay for our lumber needs. Sustainable logging methods are the sensible, responsible way of doing business. I would pay more for lumber harvested via sustainable methods. [EM21/C1]

GA15d *No chemicals*

- *No chemicals.* I am against the use of pesticides, insecticides, and fertilizers especially around Bellingham's drinking water and in streams and creeks that supply water to fish bearing creeks. Through my studies I have found that pesticides and insecticides adversely affect not only humans, but also plants, insects and animals. Alternatives 1,2, and 3 support the use of these

chemicals around Bellingham's drinking water. Therefore, I suggest that neither of these three alternatives be chosen. [EM26/C1]

Response: Preference noted. Pesticides (insecticides, fungicides, herbicides) are *intended* to adversely affect their target insect, fungi, plant, etc. Use is highly regulated in order to prevent or minimize negative impacts to non-target life and resources. In any Alternative, the use of chemicals is restricted by federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision.

EIS Process

General summary of comments related to the EIS process

DNR received a wide variety of comments regarding the EIS process. Some expressed concern that the process favored environmental interests to the exclusion of timber interests. Some thought that an independent group, not DNR, should conduct the EIS while others questioned the need for an EIS. Some stated that the PDEIS failed to analyze specific topics or incorporate or refer to information and materials recommended earlier, or should consider additional materials recommended by the commenters. (Examples of these are the cause of mercury levels in Lake Whatcom, and consideration of recent studies related to logging roads, clearcutting, water quality and municipal watersheds.) Other comments dealt with the technical aspects of the SEPA process, availability of the PDEIS document for review, and questioned the attention to a landscape focus.

General Response: The PDEIS, though not a required step in the SEPA process, has allowed an additional opportunity for interested parties to communicate their concerns and preferences for DNR's management of state trust lands in the Lake Whatcom watershed and the management plan under development. DNR has followed legislative direction in working with the Landscape Committee established by E2SSB 6731, along with seeking to include the perspectives of local citizens, Tribes, timber industry participants, and trust beneficiaries through public involvement, review and comment. DNR appreciates receiving pertinent information about technical reports and studies which may have a bearing on the decisions ahead in the Lake Whatcom planning process and will refer these to department analysts for review, and inclusion where appropriate.

The following are verbatim excerpts from comments received by DNR, relative to the EIS process, grouped by topic:

EP1 *Process flawed in favor of environmental interests. Lack of understanding about forestry. Too much politics. Using analysis to support pre-selected choice.*

The response for EP1 corresponds to the following 12 comments. It will be found at the end of the series of comments.

- Prefers Alternative 1 - The entire exercise of this review and the legislation requiring it is misguided and a huge waste of time and taxpayer money. The handpicked committee that developed the alternatives has no balance of representation and lacks expertise to properly review management of state forest lands. The committee's goal was to reduce cut on state lands as much as possible, if not totally eliminate it. [L9/C2]
- The PDEIS violates both the spirit and the letter of the law – because it uses the analysis process to support a pre-selected choice (to rubberstamp a position you've already decided upon.) [EM14a/C1]

- Hopes that DNR will do the job anticipated by the legislature – “forging a REAL partnership with the other stakeholders and conducting an HONEST assessment of impacts, with no hidden agenda to promote, so that the REAL “best choice” can be made with assurance that manipulation and obstruction were absent from the process. [EM14a/C4]
- As I read through this document, it is clear the DNR is planning on ignoring most of the comments or concerns and proceeding along its own way to clearcut this important watershed. [EM14c/C6]
- Prefers Alternative 1 - The Landscape Committee has no one with a forestry background and appears to have advanced an agenda of “no logging period,” no matter what the science says. This committee has little credibility in determining management of the state’s forest trust lands. The legislation that started this process was done in haste to appease local legislators and should not be used as rules for municipal watersheds. [L30/C1]
- Prefers a new alternative that leans toward Alternative 1 - A new committee should be formed that includes foresters and small forest landowners. I am concerned that any additional rules on state lands will also be applied to private forest landowners. [L30/C4]
- The best science and common sense should drive preferred alternatives and not groups of single-issue activists. [L30/C7]
- Prefers Alt 1 - The advisory committee is made up of public employees and environmental groups. Not much science and a lot of politics. L39/C4]
- Forest Resource Plan policy #16 (landscape planning) explicitly states that participation from outside professionals in the fields of road engineering, forestry, and economics should be encouraged. These disciplines were conspicuously absent from the Committee...and this omission is reflected in the deficiencies present in the limited range of alternatives presented in the PDEIS. [L59/C13]
- ...knowledgeable forest industry professionals and adjacent landowners were excluded from Committee participation. We doubt the legislature had this in mind when they passed E2SSB 6731 ... Purchasers and landowners actively sought to take part in the Committee process and were rebuffed. We were not ignored...we were excluded from the process, which probably is illegal but certainly is inappropriate. [L59/C14]
- First, I would like to express my dismay that the timber industry has been locked out of this process until now... If we were invited to the table at the beginning of this process, the alternatives may have looked much different and would include more realistic and innovative ideas. The absence of our industry was intentional and uncalled for. [EM8/C1]
- The “cut no trees” crowd has hijacked this process. Science has been thrown out the window for unfounded emotionalism and political gain. This is proven by the way the knee-jerk reaction law was passed to force us to through this process after the DNR spent many years in time and

money studying the land around the lake to sensitively manage their trust lands....Why are the politicians getting in the way? [EM8/C2]

Response: The Landscape Committee structure and role was mandated by the legislature (E2SSB 6731), and DNR has and will continue to give appropriate weight and consideration to the committee's recommendations. However, the EIS process relies heavily on public involvement, review and comment in order to ensure that all interests and pertinent information are represented and considered. If the department and the committee's analyses do not adequately capture or represent information relating to forest land management and the science of forestry, the public comment periods that are part of the EIS process provide the opportunity for this information to be provided and considered. In addition, the EIS analyzes only the environmental impacts. While the agency decision makers need to consider these impacts and give them appropriate weight in the decision making process, they are also required to consider and incorporate other relevant factors and information in making a final decision on a proposed plan.

EP2 *EIS process should be conducted by an independent group. At very least, peer review is needed if DNR does it.*

- Prefers Alternative 4 if these are the only options - Excerpt from letter written to local paper in 9/01: More than 120 people attended DNR Lake Whatcom Landscape Plan meeting; their comments seemed unanimous about: preservation of drinking water quality, prevention of degradation of water quality through logging, clear-cutting and road building, environmental impact study be conducted by an independent organization that doesn't have a vested interest in the outcome, followed by peer review. Now a year later there's a PDEIS done by DNR and no peer review. [L31/C1]
- It is becoming very clear that DNR should listen to comments such as the one made by Representative Kelli Linville that DNR should not do its own EIS. [EM14c/C7]
- Peer review of EIS from other agencies. [EM14c/C11]
- Independent authoring of EIS outside of DNR to instill public confidence in the results. [EM14c/C12]

Response: This concern was also raised during the initial scoping phase, and responded to in the 12/21/01 Scoping Summary (please see pg.5, Section III.A). DNR discussed this concern with the Landscape Committee, legislators, local elected officials and interest groups. These discussions resulted in the decision that DNR would prepare the EIS, but would add a Preliminary Draft EIS as an additional opportunity for public comment and review. In addition, it was agreed that a third party facilitator would be used to assist the Committee and DNR to develop the alternatives, including the selection of a preferred alternative, and that the Committee would identify experts to receive the PDEIS for review and comment as part of the public comment period.

EP3 *Want to see a risk analysis included in the DEIS*

- The revenue is inconsequential to me, as I believe the quality of the plan sets well above the need for trust revenue from a drinking water supply. I hope to see a risk analysis in the upcoming draft... the loss of revenue does not seem significant, since the numbers are so small. [L41/C2]

Response: A risk assessment matrix, as well as potentially a cost/benefit assessment matrix, is under consideration for the DEIS and will be included if the information is available for these types of assessments. Although not normally part of an EIS, these assessments could provide some perspective to the differences of opinion relating to trust revenue versus drinking water supply that may be of use to the decision makers.

EP4 *References and/or ideas submitted earlier were not used in the PDEIS analysis.*

EP4a *References to documents cited in WDFW letter*

- *References* – The PDEIS does not include any references to the Washington Department of Fish and Wildlife Priority Habitats and Species publications. These documents include extensive literature reviews and management recommendations for managing riparian, fish, and wildlife resources using some of the best available science. These and other document references were submitted by WDFW in the scoping comment letter for inclusion in the EIS analysis. Only two of the 13 documents in the WDFW scoping comment letter are listed as references in the PDEIS (FEMAT and the Lake Whatcom Watershed Analysis). We request that this material be incorporated into the analysis of the alternatives in the DEIS. [L58/C4]

Response: Due to an extremely limited window of time that was available for the preliminary analysis, it was not possible for all the analysts to conduct an extensive literature review. Some of the analysts found that the literature cited by WDFW didn't have a direct bearing on the topics they were examining for the PDEIS. It is anticipated that a much more thorough review of the literature will be conducted and incorporated into the analysis of alternatives during the development of the DEIS. The references that were submitted by WDFW will certainly be considered, and will likely be very useful. Those documents with information applicable to the Lake Whatcom management planning area and process will be cited in the DEIS. DNR would appreciate hearing if there are additional references, information or analyses that are missing or incorrectly applied relative to this specific management plan.

EP4b *Mercury*

- Mercury and logging (page 99) – WDFW sent a letter to the Washington Department of Ecology (DOE) citing literature documenting a possible correlation between logging and mercury in two recent scientific studies conducted in Canada. This letter was sent in response to a DOE letter to DNR stating that there were not any likely water quality problems associated with the existing forestry regulations on state lands in the Lake Whatcom watershed. As already mentioned above, mercury has been found in Lake Whatcom fish and crustaceans. To date, WDFW has not received a reply or conflicting evidence to refute those studies. A copy of this

letter was sent to DNR, but has not been referenced in the PDEIS or included in the Appendix. We request that this letter be included in an appendix to the DEIS. [L58/C14]

- The mercury issues in Lake Whatcom are still absent from DNR's analysis, despite repeated attempts by both citizens and WDFW to draw DNR's attention to this problem (and the research that indicates a connection can exist between logging/soil disturbance and the release of mercury.) [EM14a/C3]

Response: The DNR did receive a copy of the November 21, 2001 letter from the Washington Department of Fish and Wildlife (WDFW) to the Department of Ecology (DOE) Water Quality Program Manager concerning the possible correlation between logging and mercury levels in Lake Whatcom. This letter was a response to DOE stating in a November 15, 2001 letter to the Commissioner of Public Lands that there is no reason to expect that forestry land uses are contributing to the mercury problem. The DNR acted on the WDFW letter by reviewing the cited studies and an additional related study, contacting one of the authors, Dr. Richard Carignan, and by contacting DOE to confirm their position on this issue. Dr. Carignan stated that their findings are probably site-specific, and he does not expect them to apply to other areas where topography, runoff, and soils differ. The climate, soils, vegetation, topography, and harvest methods used within the Lake Whatcom watershed are very different from those of the Canadian Shield of central Quebec. Therefore the DNR concluded that a link between timber harvest and mercury levels in Lake Whatcom is not probable. Under WAC 197-11-060(4)(a) consideration of this issue in the PDEIS is not required.

EP4c *How can timber industry effectively influence alternatives without being on the Lake Whatcom Committee?*

- I was a part of an industry meeting held in Sedro-Woolley that went over the Lake Whatcom plan. It seems obvious to me that in the five alternatives being chosen, our comments from that meeting were not considered, and even though we were told we had equal standing with the Lake Whatcom Committee, the only alternatives are coming from the Legislature or the "Committee." [EM?/C1]

Response: Over a year and a half after the DNR Lake Whatcom Landscape Plan Committee began to meet, some representatives of the forest industry approached DNR and requested that they be represented on the Committee. The Committee structure, role and representation was mandated by the legislature (E2SSB 6731) and then Commissioner of Public Lands Jennifer Belcher in the year 2000. Because of that, and partly due to the considerable work already done by the Committee up until that point, DNR instead encouraged the forest industry representatives to actively participate in the EIS process. In addition, private forest landowners and others participating in the Lake Whatcom Forestry Forum monthly meetings will continue to have opportunities to exchange information with DNR about the Lake Whatcom DNR Landscape Plan. DNR has periodically shared information about the Landscape Plan at Forum meetings over the past couple of years. The Forum consists of representatives from local and state government, citizens, and forest landowners. It administratively reports to the Lake Whatcom Management Committee that includes Whatcom

County, the City of Bellingham, and Whatcom County Water District 10. Please also see the response to **EP1**.

- Timber industry person - We were also told that we would be meeting again before the final results were out, but if these are the only alternatives to be considered it seems pointless! Exactly where does this leave us in the process? [EM?/C2]

Response: Please see the responses to **LP1** and to [EM?/C1] above. DNR will continue to seek involvement, review and comment from timber industry participants, as well as local citizens, Tribes, and trust beneficiaries during the coming DEIS and FEIS phases of this landscape planning process.

EP5 *References to and incorporation of other work and documents*

General Response: DNR appreciates reviewers identifying information and documents that may pertain to the development of the Lake Whatcom Landscape Management Plan and related SEPA review and analysis. Those documents that have not been previously reviewed and analyzed will be reviewed and pertinent information will be incorporated into the DEIS. Where specific information suggests the need to alter the initial analysis in the PDEIS, DNR will review past work and pursue additional analysis.

SEPA rules and regulations stress the need to limit the scope of coverage and content of an EIS to reasonable alternatives and probable (as opposed to remote or speculative) adverse environmental impacts that are significant, and to reduce the accumulation of extraneous background data. (See RCW 43.21C.110(1)(d), WAC 197-11-030(2)(b) and WAC 197-11-782). Lead Agencies are also encouraged, and in some cases required, to use existing environmental documents in order to avoid duplication of effort and expense. (See RCW 43.21C.100(2)(b) and WAC 197-11-600(4)). Therefore, some documents and information identified by commenters may not be pertinent to or appropriate for inclusion in the EIS, or may be best incorporated by reference.

EP5a. *First Landscape Committee recommendations*

- The PDEIS should include additional discussion concerning the recommendations made by the first landscape committee and the DNR response to those recommendations. The DNR response prompted local citizens to seek additional legislation (E2SSB 6731) for the planning process. These documents (*named in letter*) should also be incorporated into the Appendix in their entirety. [L58/C8]

Response: These documents are incorporated by reference where applicable.

EP5b *Continuing role of the Landscape Committee*

- The PDEIS should mention the function of the landscape committee to make site-specific recommendations following adoption of the final landscape plan. Although this fact is

mentioned elsewhere in the document, the importance of this component to the long-term landscape process would be appropriate in this section. [L58/C8]

Response: As mandated by the legislature (E2SSB 6731) the department will “establish an interjurisdictional committee...to review the site-specific activities and make recommendations.” A description of this committee will be included in the DEIS.

EP5c *Blanchard Mountain Timber/Recreation Assessment*

- The Blanchard Mt. Timber/Recreation Assessment should be incorporated in the EIS. [L59/C10]

Response: This assessment will be considered and incorporated, most likely by reference, where appropriate in the DEIS.

EP5d *Oregon State University study: wildfire risk/mitigation for water supplies*

- ...A publication entitled *Municipal Water Supplies from Forest Watersheds in Oregon: Fact Book and Catalog*, prepared by Adams and Taratoot at OSU... A principal finding of the OSU study is the demonstrated need to protect water supplies from forested watershed from the disastrous effects from wildfire. Lake Whatcom watershed has a history of stand replacement fires. A discussion of wildfire risk and mitigation completely is absent from the PDEIS Fire Management assessment (Appendix Section M)... Key findings from this report should be incorporated into the PDEIS Water Quality Assessment (Appendix Section E). [L59/C17]

Response: Comment noted. Assessment Report M in Appendix D of the PDEIS discusses wildfire risks and identifies urbanization and increasing public use as the leading risks of wildfire in the area. The Adams and Taratoot document is being reviewed and will be incorporated in DEIS as appropriate.

EP5e *Appending comments from Dr. Lappe*

- I append by reference Dr. Marc Lappe’s comments and recommendations re: the fragile status of this reservoir. (at www.lakewhatcom.org) [EM14b/C8]

Response: Although submitted well after the deadline for public comments, Dr. Lappe’s comments will be reviewed and, if appropriate, incorporated into the DEIS.

EP5f *Mercury*

- ... A letter from WDFW shows scientific studies that logging increases mercury in lakes. DNR now specifically refuses to address this issue. Can you explain that? There is no mention of these studies in your EIS scoping document. [EM14c/C1]

Response: Please see the general response to **EP5** as well as **EP4b** [L58/C14] and **BE** [L58/C14].

EP5g *PDEIS lacked information on economic value of Lake Whatcom water*

- I requested that economic information on the value of the water to the city be included rather than just value of timber. I do not find any mention of this comment. [EM14c/C2]

Response: DNR will consult with Washington State Department of Health, the City of Bellingham, and Whatcom County Water District Number 10 on the potential valuation of water. Given this water source is required to be treated under state and federal drinking water requirements, the value would likely be any additional treatment that might be required to address potential contaminants from logging practices. See also the November 27, 2001 letters from the state departments of Health and Ecology (PDEIS Appendix D, 7 and 8), and response to comment **EP3 [L41/C2]** above. The PDEIS financial analysis recognizes that other valuable goods and services (such as water supply) are produced in the Lake Whatcom watershed (see page 2 of the financial analysis in PDEIS appendix), but covers only those goods and services perceived as likely to realize the greatest returns to land management by DNR.

EP5h *Best Management Practices*

- Where is the mention of DNR's plan to use BMPs? [EM14c/C3]

Response: The term "best management practices" (BMPs) is not specifically mentioned in the alternatives because it is a generic term which encompasses a wide range of practices that may be employed on a site-specific and activity-specific basis. The strategies contained in the alternatives are intended to be more clear and specific in describing where and how management activities will occur. The commitment to using BMPs is embedded in the Forest Practice Rules Manual, Section 3, Watershed Analysis prescriptions and the Habitat Conservation Plan.

EP5i. *Previous recommendations*

- Include all recommendations of the 2001 Landscape Committee into the EIS. [EM14c/C14]

Response: See responses to general comment **EP5** and comment **EP5a** above.

EP5j. *Objectives of E2SSB 6731 and inclusion of new information*

- Follow the Lake Whatcom bill: Several means of achieving those objectives are stated in E2SSB 6731 itself: ... And the legislature also instructed DNR to "build on the existing draft Lake Whatcom landscape plan and incorporate both new information from the community and new scientific information when available." It is clear from the PDEIS literature citations that you have ignored this directive: you have failed to examine and incorporate any recent scientific record. Published data that is widely known is simply ignored. ... Dr. Dave Montgomery is a well-known expert in the field. We have included a review of this PDEIS by Dr. Montgomery to assist your future efforts to incorporate science in the landscape plan. We also request that future environmental documents and analysis rely on current scientific literature. [EM16/C6]

Response: Alternative 2 as developed by DNR and the Landscape committee is specifically designed to incorporate the requirements of E2SSB 6731. In addition, the PDEIS provides an initial analysis based on pertinent, significant information currently available to DNR's analysts. The purpose for public review in the SEPA process is to provide an opportunity to comment on and add to this information. In developing the DEIS we will review and incorporate the slope stability information from Dr. Montgomery's review where applicable and appropriate. The PDEIS cited relatively few research publications; however, recent research results weren't ignored during development of the Alternatives. The current Forest Practices Rules (including the Board Manual) and the Watershed Analysis Mass Wasting report and Prescription, and the delineation of potentially unstable slopes for the Lake Whatcom Planning Area all explicitly embody knowledge gained through research.

EP5k *Studies related to drinking water protection*

- Protecting clean drinking water from management-related activities is another essential element of the landscape plan, yet the PDEIS references no recent studies in that field. There are several recent publications relevant to water quality that should be considered as part of the landscape plan, including:
 - Collins, B. D. and G. R. Pess, 1997. Critique of Washington's Watershed Analysis Program. *Journal of the American Water Resources Association* 33(5): 997-1010
 - Collins, B. D. and G. R. Pess, 1997. Evaluation of Forest Practices Prescriptions From Washington's Watershed Analysis Program. *Journal of the American Water Resources Association* 33(5): 969-996 [EM16/C7]

Response: See general response to **EP5** above. The referenced material will be reviewed incorporated in the DEIS as appropriate and applicable.

EP5l *Include E2SSB 6731 in DEIS*

- I have enclosed E2SSB 6731, the Lake Whatcom Bill, as the bill is missing from the PDEIS. Please include it in the DEIS to ensure the public is well informed about the legislative intent. The current summary is completely insufficient. [EM16/C9]

Response: E2SSB 6731 was inadvertently omitted from the PDEIS. It appears in Appendix A to this response summary and will be appended to the DEIS.

EP5m *Literature recommendations related to mass wasting*

- The legislative intent was to protect public safety and Page 25 of the PDEIS states that the Department has adopted the following objective: Objective 1: Ensure no significant risk to public health, safety and resources, and tribal archaeological and cultural resources from forest management related mass-wasting events. We ask that DNR select an alternative that meets that high standard. ... We recommend DNR examine the following:

Schmidt, K. M., Roering, J. R., Stock, J. D., Dietrich, W. E., Montgomery, D. R., and Schaub, T., 2001. Root Cohesion Variability and Shallow Landslide Susceptibility in the Oregon Coast Range. *Canadian Geotechnical Journal*. V. 38, pp 995-1024

Montgomery, D. R., 1994. Road Surface Drainage, Channel Initiation and Slope Instability. *Water Resources Research*. 30(6): 1925-1932

We ask that the risk of landslides should not merely be minimized or reduced: DNR must ensure that there is no significant risk to public health, safety and resources from logging related mass wasting. We ask that DNR adopt an alternative that ensures no significant risk to public health, safety and resources from logging related mass wasting. As laid out below, the only alternatives that accomplish this are Alternatives 4 and 5. **[EM16/C10]**

Response: The objective was agreed upon by DNR and the Committee. The referenced material will be reviewed and incorporated into the DEIS where applicable and appropriate. See also the general response to **EP5** and responses to **EP5j** and **EP5k**.

EP5n *Justification for watershed analysis prescriptions*

- *Alternative 1:* Steep slopes above neighborhoods and along streams leading to a municipal drinking water supply are not places to experiment with new rules that are not supported by scientific literature. We find this alternative to be inconsistent with the stated objective and with the letter and the intent of the legislation as Alternative 1 puts public safety and resources at risk of mass wasting caused by logging practices...We ask that DNR provide justification for the watershed analysis prescriptions for Lake Whatcom. **[EM16/C12]**

Response: The Watershed Analysis reports and Prescriptions are part of a Forest Practices regulatory process that is completely separate from, and independent of, the Lake Whatcom Landscape Plan. Justification for individual Prescriptions is contained in the Watershed Analysis reports. Both Watershed Analysis report/Prescription documents pertinent to the Planning Area were peer-reviewed and passed through the State Environmental Policy Act (SEPA) review/approval process. Alternative 1 is recognized as not being consistent with the requirements of E2SSB 6731. This is the no action alternative, which represents the status of governmental regulations that exist prior to development of a management plan consistent with the requirements of E2SSB 6731.

EP 6 *Geographic application of the legislation*

- The EIS should exclude additional restrictions described in E2SSB 6731 from applying to trust lands outside the Lake Whatcom hydrographic boundary. **[L59/C16]**

Response: The restrictions described in E2SSB 6731 are specific to trust lands “in the Lake Whatcom watershed area” and the analysis in the EIS of these restrictions is limited to this same watershed area. Application of these restrictions to private lands in the Lake Whatcom watershed, or to either trust or private lands within other watersheds, would require additional analysis specific to proposals potentially affecting those lands. (Note: E2SSB 6731 does not refer to a hydrographic boundary.)

EP7 *Additional analysis that should have been included in the PDEIS*

- *Financial impact study:* The fact that there will be a significant impact on revenue for local school districts is not addressed in this section or elsewhere in the report. Additionally, the approximate size of these impacts is not discussed. While it may be beyond the scope of an environmental impact statement, it is of critical importance that the DNR conduct a financial impact study to ensure that all consequences of each alternative be considered. [EM4/C2]
- The Lake Whatcom PDEIS gives inadequate attention to the revenue production obligations of the DNR. No financial impact statement is included. No consideration is given to a funding source and mechanism to reimburse Mount Baker School District for any future forgone income if Alternatives 2 through 5 are adopted. [EM5/C4]

Response: The potential impact of revenue for trust beneficiaries is of concern. Although the SEPA process usually does not include a cost/benefit analysis, one may be incorporated by reference or attached as an appendix (see WAC 197-11-450). This was discussed with the Landscape Committee, and there was general agreement that a cost/benefit assessment and a risk assessment in a matrix form and as appendices would be considered for the DEIS if the supporting information was available. In addition, the EIS is only one piece of information that the decision makers will use. (See also responses to **EP1, EP3, and LP5**).

It is not possible at this stage of the process to estimate financial impacts at the level of individual trust beneficiaries. Detailed harvest plans that relate harvest volumes, values and timing back to land holdings of specific trusts do not presently exist.

- Secondly, I want to address the overall implications of the general approach suggested by the PDEIS. The process considered the following categories of criteria: Ecological impact; Tribal interests; Revenue; Community concerns. While these are certainly important areas that should have been studied, limiting the evaluation to these four areas is insufficient. It is clear (as stated above) that specific impact on trust land revenue must be considered. Also it is important that the DNR consider the following areas of concern in addition to the four that were studied:
 - General economic impact on the local community
 - Other competing interests that impact water quality and could be controlled in through other action
 - Alignment between the legislation that caused the PDEIS to occur and the purpose of DNR managed trust land
 - Other legal implications of the proposed alternatives [EM4/C3]

Response: The PDEIS does recognize there are general economic impacts on the local communities but does not analyze them for two reasons: the impacts are speculative and a financial analysis rather than cost-benefit analysis was performed.

EP8 *Description of Committee's role*

- The legislation made the committee a full partner – not an advisory body. [EM14b/C2]

Response: The role of the Interjurisdictional Committee was addressed in a January 18, 2002 informal opinion of the Attorney General of Washington, which responded to an inquiry from Representative David Quall. The Attorney General stated, “The Department of Natural Resources (DNR, the Department) has the primary responsibility for developing the Lake Whatcom Management Plan with the advice of the Interjurisdictional Committee (Committee). The Committee was created to assist DNR in developing the landscape plan. Because the Committee is advisory to DNR, the Department need not be a member of the Committee.”

DNR will work with the Committee to develop a preferred alternative. If consensus can not be reached, and part or all of the Committee recommends a different alternative, DNR will include it, along with the preferred alternative, in the DEIS.

- DNR still has not said that they will accept the recommendations of the Landscape Committee? Is that DNR Policy? [EM14c/C4]

Response: The Interjurisdictional Committee serves as an advisor to DNR in this process. DNR ultimately bears the primary responsibility for developing the plan. The policy decisions involved with this process, and the ultimate choice of alternative, will rest with DNR’s Board of Natural Resources, the entity that sets the policy direction for DNR land management activities.

EP9 *Need and the legal authority for conducting EIS process*

- Where is DNR’s AGO opinion that this EIS process is even legal? Where is the Determination of Significance before the Landscape plan is even done? Can you publish a link to that opinion? [EM14c/C5]
- DNR is assuming an EIS will be needed, when it may not. Plan, once completed, might adequately mitigate the effect of future forestry practices, resulting in a DNS or mitigated DNS. By proceeding before plan is fully developed, DNR may be spending money unnecessarily in a time of extreme budgetary constraints. [EM14b/C3]
- A formal threshold determination of D.S. is necessary before one moves to an EIS. [EM14b/C4]
- By proceeding before a plan is completed, the EIS analysis cannot be done on the comprehensive whole, which may alter the results. May also result in incomplete analysis, requiring a supplemental EIS, increasing time and expense. [EM14b/C5]

Response: DNR issued a combined threshold determination and scoping notice in August, 2001 in accordance with SEPA rules and regulations. The responsible official determined that an EIS was necessary for this proposal and that the EIS process, in particular the development and analysis of alternatives as well as the public involvement requirements of SEPA, would assist in the development of the landscape management plan. SEPA encourages lead agencies to commence

preparation of an EIS as close as possible to the time a proposal is being developed and to integrate the requirements of SEPA with existing agency planning activities in a concurrent manner. Running the processes concurrently rather than consecutively eliminates duplication and delay (see WAC 197-11-030(2)(e) and 197-11-300(4)). DNR is unaware of any requirement for an AGO's opinion regarding the lead agency's decision to initiate this or any other EIS process.

EP10 *Lack of a landscape focus*

- ... I am a landscape ecologist and I have been working on forest management issues in the Pacific Northwest for over 10 years. In my view, the PDEIS fails to provide a true landscape-level evaluation of management activities on the DNR lands in the Lake Whatcom watershed. Such an evaluation would require consideration of the larger context within which any proposed management activities might occur. This would involve a consideration of current and likely future activities on privately owned lands that surround the DNR-managed lands. The failure to consider these surrounding lands results in a very myopic and grossly oversimplified analysis of the impact of management activities on DNR lands. This problem is woven throughout the entire document. Two of the best examples of this are in the sections that deal with hydrologic maturity and biological diversity. [EM27/C2]

Response: The issue of larger landscapes and wildlife habitat diversity has been addressed in the DNR's HCP and the associated EIS for that plan. Analyses for the HCP established large planning areas and addressed current and potential threatened and endangered species in a larger landscape context. Information from these analyses will be used when considering impacts of alternatives to wildlife and wildlife habitat in the Lake Whatcom planning area. Habitat modeling has been, and will continue to be, restricted to state-managed lands, due to limitations of time and reasonably available information.

SEPA requires the evaluation of direct and indirect impacts, including those potentially associated with past, present and reasonably foreseeable future activities. However, SEPA also limits consideration to probable versus speculative impacts. Including further evaluation of potential future management activities of private landowners would be speculative as DNR does not have information regarding these activities beyond current forest practice applications. Activities of private landowners are generally assumed to be evaluated and impacts mitigated through other processes, including the Forest Practice Rules incorporating the Forest and Fish Report. Watershed Analysis was completed for all forestlands (both state and private) in the Lake Whatcom watershed in 1997. This analysis did consider potential impacts from changes in hydrologic maturity and developed prescriptions to address those impacts, which apply to all forest landowners within the watershed. Where specific information of potential future activity does exist, especially relating to hydrology and biological diversity, DNR would appreciate receiving this information and will incorporate it into the DEIS where applicable and appropriate.

EP11 *Failure to use most current science & minimizing potential impacts*

- Throughout the document, the DNR seems to show a consistent pattern of minimizing concerns about the potential adverse impacts of timber harvesting. In support of their assertions of

minimal impacts, they frequently cite outdated scientific papers or fail to cite publications that present alternative views. This is inappropriate. There are many examples of this. Here is one. On page 102, the first two paragraphs discuss the potential for increased peak flow in response to timber harvest and roading. In support of their assertion of minimal impacts, they cite two papers from the mid-1970s (Rothacher, 1973; Harr et al., 1975). There has been quite a bit of work on this topic, including:

Jones, J.A., F.J. Swanson, B.C. Wemple and K.U. Snyder. 2000. Effects of roads on hydrology, geomorphology, and disturbance patches in stream networks. *Conservation Biology* 14:76-85.

Jones, J.A. and G. E. Grant. 1996. Peak flow response to clearcutting and roads in small and large basins, western Cascades, Oregon. *Water Resources Res.* 32:959-974.

Wemple, B.C., J.A. Jones and G.E. Grant. 1996. Channel network extension by logging roads in two basins, western Cascades, Oregon. *Water Resources Res.* 32:1-13.

In particular, the Jones and Grant 1996 paper has touched off a lively debate in the literature and several papers in support and opposition to this paper, and responses from the original authors, have appeared in the literature since then.

My point here is not that the authors are wrong on this particular point. However, on many many issues in the PDEIS, the authors have failed to acknowledge scientific uncertainty and opposing points of view. This lack of balance in the PDIES calls into question the objectivity of the authors. There is too much at stake here. We need to be careful. We need to make decisions based on a balanced presentation of the best scientific information that we have available to us. [EM27/C10]

Response: Just because research was conducted over 20 years ago does not necessarily mean that it is out of date. The Rothacher and Harr studies cited in the PDEIS were based on sound science using a statistically valid experimental design and hard data. Both of these studies helped to lay the foundation for our understanding of hydrologic processes in forest ecosystems. Over 20 years of monitoring streamflows on a working forest by the DNR has confirmed the results of these studies. The Jones and Grant 1996 paper is an analysis of existing data with no controls. It has caused considerable debate; however the debate mainly concerns the validity of their analysis methods and inferences. Please also see responses to comments **EP5, EP5j, EP5k, EP5m and LP9**.

EP12 *Representation of citizens' views*

- Questions?? How can this be legitimate? When it really does not represent a good overview of the residents in and around the watershed? [CC4/C1]

Response: The creation of the landscape committee and the SEPA public review requirements are intended to provide opportunities for representation of the residents in and around the watershed as well as those outside the watershed that may be potentially affected. See also response to comment **EP1**.

EP13 *Public notice and/or availability of document*

- Notice to the general public was ____? [CC4/C2]

- “Hard” copies (printed) of the PDEIS have not been available at the Sedro Woolley DNR office. SEPA file #02-091300 (9/13/02) states that copies are available at the office, yet they have not been. Therefore, SEPA has not been adequately complied with, and the 45-day comment period needs to be restarted. [CC6/C1]
- The notice says print copies are available at DNR’s Northwest Region office and copies were not available at the DNR office. DNR should be sending a notice of pending release beforehand asking if copies are requested. There is an additional concern about the time frame of the notice regarding this meeting. Therefore, the speaker requests the SEPA official re-start the 45-day comment period as of the date of this public meeting. [PM9]
- The library is not an appropriate place for document review. The document needs to be available on CD or in some other way for reviewing and marking up the copy. [PM55]

Response: The notice announcing availability of the PDEIS was widely distributed, including to the mailing list of interested parties and through the media. The PDEIS document was published September 13, 2002. On that date, DNR sent copies to the tribes, committee members, SEPA centers and directors of natural resource agencies, and a notification letter was sent to the list DNR has of those who requested it. Paper copies were available for review at the Bellingham Public Library and the State Library and on the web. A statewide news release was sent on September 18 to media, committee members, agencies of jurisdiction, and people who expressed an interest in being informed. A reminder was sent to local media and the other parties who received the news release on October 8, 2002. Copies were also available upon request from the DNR SEPA Center, and the PDEIS was available via DNR’s internet site. Both paper copies and CDs were available at the October 10, 2002 public meeting. We believe this meets and substantially exceeds the basic SEPA requirements for notification and distribution of this document. DNR acknowledges that, although copies of the document were available for review at the Sedro-Woolley DNR office, personal copies could not be picked up immediately at this location. DNR will have hard copies of the DEIS available at the Sedro-Woolley office. DNR will consider additional enhancements for notification and distribution of the DEIS, including the potential of preparing a limited number of CDs of the DEIS for distribution.

- The memorandum sent to me and others, dated September 13, 2002, is far from showing what the alternatives are compared to the charts by the wall. [CC4/C3]

Response: Comment noted.

- The speaker requests a hard copy of the DEIS document (by mail) when it comes out (postal address on tape). [PM62]

Response: Request has been noted.

EP14 “Voting” aspect of PDEIS

- ... We observed several persons filling out more than one of the cards. Is this encouraged and okay? [CC4/C4]

Response: The SEPA process is not one of “voting.” It’s intended to ensure that potentially significant environmental impacts and reasonable alternatives are identified and evaluated. “Voting” for an alternative is neither encouraged nor considered part of the SEPA process.

Legal and Policy Issues

Verbatim excerpts from comments received regarding legal and philosophical issues are grouped by topic.

Basic Legal and Policy Assumptions

LP1 *Current laws and regulations already protect water quality, so the emphasis of this plan should be on managing for the short- and long-term economic benefits of the trusts, while following existing laws and rules.*

General Response: The Legislature added additional requirements of E2SSB 6731 (2000 Washington Laws Chapter 205) to the Department's existing policies and legal requirements for state-owned forestlands in the Lake Whatcom watershed area. Those combined requirements are identified in Alternative 2 of the PDEIS. The Department will work with the DNR Lake Whatcom Landscape Planning Committee to develop a preferred alternative that will carry out that direction. Once the Legislature has enacted additional management requirements such as in E2SSB 6731, the DNR cannot disregard those legislative directions.

The general response addresses the following eight comments:

- Prefers Alternative 1 - With current protections already in place, it's time to start managing these lands for the benefit of the trusts as well as protecting water in the lake. [L3/C2]
- Prefers Alternative 1 - The DOE and DOH reports show water quality will not be significantly impacted by forest management. With protections already in place, it's time to maximize returns to the trusts. Alternative 1 is the only reasonable choice. If it's not available, write one as close to it as possible. [L4/C1]
- Prefers Alternative 1 - I am strongly opposed to having my taxes needlessly increased to offset the revenue shortfall from stopping responsible forest management in the watershed. [L9/C4]
- Prefers Alternative 1 - Forestry is not the problem in the Lake Whatcom watershed. It is being used by the environment/no-cut groups to stop timber harvest. [L39/C1]
- Prefers a stronger revenue alternative - Water quality and public safety appear to be surrogates for opposition to land management activities on DNR managed trust lands... The Department of Ecology is on record as saying, "*properly managed commercial forestland has been recognized as the most benign active land use for watershed protection for some time.*" The Department of Health said, "*it is our understanding that very few of the potential contaminant sources identified in the Source Water Protection Plan for Lake Whatcom could originate from State Forest Lands or DNR activities.*" [L59/C2]

- In evaluating the alternatives for the Lake Whatcom Landscape Plan, the Board of Natural Resources must balance legal requirements for environment protection with trust obligations. It has been argued that Alternative 1 of the PDEIS is in conflict with provisions of E2SSB 6731 restricting new road construction. If the new road construction restrictions included in E2SSB 6731 Sec. 1 (3) are interpreted to reduce revenue production to the extent outlined in Alternatives 2 through 5 of the PDEIS, then that interpretation would conflict with legal obligations to produce trust revenue. The restriction on new road construction would not provide any significant additional protection of water quality that is not already provided by current regulations. The potential revenue reductions of Alternatives 2 through 5 are too great to justify their adoption. If there is a conflict between laws, submit this issue back to the legislature. [EM5/C3]
- “Think Globally Act Locally”... If we tie up all of our forest lands into no management or no cut, where will the wood come from to build houses and make paper? Washington state probably has the toughest forest practice laws... by making our timber off limits we are asking countries that have little or no forest practice rules to cut their forest down to meet the world demand for wood fiber. [EM8/C11]
- Adopted rules are available already. We are reinventing the wheel with protections we already have. [PM27]

LP2 *Implications of not allowing DNR to generate income for the trusts*

- Prefers Alternative 1 - If state lands can't be managed for revenue production, then DNR must sell or trade the lands to satisfy the trust mandate. This could mean more aggressive management by other parties who acquire the lands. [L9/C5]

Response: As with any trust parcels managed by the Department throughout the state, the Board of Natural Resources may determine when it is not in the best interest of the trusts to continue managing them and consider compensation alternatives such as exchange, reconveyance or sale.

LP3 *Potential relationship to rules for private lands*

- Prefers a revised alternative that leans toward Alternative 1 - The legislation that started this process should be considered experimental and not a permanent blueprint for watershed management... A new committee should be formed that includes foresters and small forest landowners. I am concerned that any additional rules on state lands will also be applied to private forest landowners. [L30/C3]

Response: The requirements of E2SSB 6731 are specific to “state-owned forest lands in the Lake Whatcom watershed area.” The Department does not plan to change the representation on the existing DNR Lake Whatcom Landscape Plan Advisory Committee. However, the Department is striving to have an inclusive and transparent process that formally (through the SEPA process) and informally connects to all interested parties. Please also see **EP4c** and **EP6** [L59/C16].

LP4 *Need for flexibility*

- Prefers revised Alternative 1 - Leave plenty of flexibility in management options for the future. You need to be able to adjust to unforeseen ecological changes in the future. [L30/C8]

Response: The DNR intends to develop a landscape plan for state forestlands in the Lake Whatcom Landscape Planning Area that can adapt to new information. The plan will guide both short-term and long-term management consistent with DNR's Forest Resource Plan (1992), Habitat Conservation Plan (1997), Forest Practices Rules, and E2SSB 6731 (now 2000 Washington Laws Chapter 205).

LP5 *DNR must fulfill its Trust Mandate, which includes generating revenue for the trusts.*

- All alternatives except Alternative 1 violate the DNR's trust mandate. [L39/C2]

Response: The Department is required to both fulfill its fiduciary obligations as well as comply with validly enacted laws such as E2SSB 6731 (2000 Washington Laws Chapter 205). The Department cannot assume that these duties are inherently inconsistent, but rather, must endeavor to try to harmonize these duties to the maximum extent practicable. The Legislature is a trustee just as is the Department (AGO 1996, No. 11, at 13), and the Legislature presumably considered the State's fiduciary obligations to the trust beneficiaries when it enacted this legislation.

- Under the *Prudent Person Doctrine* of the *Trust Mandate* (1992 Forest Resource Plan), it must be asked what additional benefits accrue to either the trusts or public from even analyzing (or contemplating) alternatives that fail a reasonable cost vs. benefit analysis, and that are clearly adverse to the economic interest of the trust beneficiaries? ... PDEIS Alternatives 3-5 are "unreasonable in their range" under SEPA, and violate the prudent person doctrine. New alternatives must be developed to comply with the trust mandate, the prudent person doctrine, SEPA and legislative instructions. [L59/C9]

Response: See response to this comment under **GA7d**. DNR and the Board are aware of their fiduciary obligations to the trusts. At the same time, DNR must comply with validly enacted laws, such as E2SSB 6731 and attempt to harmonize as much as possible the Lake Whatcom legislation with fiduciary obligations.

The response which corresponds to the next five comments follows the series of comments:

- PDEIS management objectives "adopted" by the Department and Committee should be reviewed for consistency with the 1992 Forest Resource Plan and Trust Mandate ... There is no explicit management objective in the PDEIS that provides for maintaining or increasing revenues from timber production to provide sustainable income to trust beneficiaries. This is a glaring omission in PDEIS objectives... The EIS needs a thorough discussion of how each EIS alternative helps DNR and the Board fulfill the Trust Mandate. [L59/C12]

- In evaluating the alternatives for the Lake Whatcom Landscape Plan, the Board of Natural Resources must balance legal requirements for environment protection with trust obligations. It has been argued that Alternative 1 of the PDEIS is in conflict with provisions of E2SSB 6731 restricting new road construction. If the new road construction restrictions included in E2SSB 6731 Sec. 1 (3) are interpreted to reduce revenue production to the extent outlined in Alternatives 2 through 5 of the PDEIS, then that interpretation would conflict with legal obligations to produce trust revenue. The restriction on new road construction would not provide any significant additional protection of water quality that is not already provided by current regulations. The potential revenue reductions of Alternatives 2 through 5 are too great to justify their adoption. If there is a conflict between laws, submit this issue back to the legislature. [EM5/C3]
- As the Department of Natural Resources (DNR) reviews the PDEIS, public input, and other information, I am sure that it will want to consider its obligation to manage Trust Lands in the interest of the children in our local communities, one of the Trust Lands most significant beneficiaries. The interests of our children can only be served if decisions are made with a balance of concerns for the environment, the economy, and specific revenue interests. First and foremost, I urge the DNR to keep in mind its “legal duty to produce long-term income for specific trusts, which are the trust beneficiaries” as clearly stated in the PDEIS (p. 16, sec. 2.2). One of the primary purposes of the DNR is to manage the lands in a manner that will ensure the revenue generating capacity of the trust lands that it manages. Doug Sutherland states, “...much of [DNR managed] land is dedicated to supporting public institutions like schools.” [EM4/C1]
- The fact that there will be a significant impact on revenue for local school districts is not addressed in this section or elsewhere in the report. Additionally, the approximate size of these impacts is not discussed. While it may be beyond the scope of an environmental impact statement, it is of critical importance that the DNR conduct a financial impact study to ensure that all consequences of each alternative be considered. [EM4/C2]
- As a recipient of revenue from county transfer lands managed by the Department of Natural Resources in the Lake Whatcom watershed, Mount Baker School District is concerned about the financial impact of proposals included in the Lake Whatcom Landscape Plan PDEIS, September 13, 2002. The Department of Natural Resources has a legal obligation to the trust recipients to produce revenue on a long-term basis. Revenue generation should be maximized within the constraints of prudent, sustainable management. [EM5/C1]

Response: DNR is aware of its fiduciary obligations to provide trust revenue and at the same time must comply with validly enacted laws such as E2SSB 6731. As the Lake Whatcom process moves forward the DNR will continue to analyze the range of alternatives to make sure that they are all reasonable and capable of being achieved.

- I have lived within the Lake Whatcom watershed for 23 years beginning in 1979. All but seven of those years were spent on North Shore Rd near Carpenter and Olsen creeks. I experienced the debris floods of the early '80s and saw the devastation of poor forestry practice. Since that

time I believe much has been learned about preventing such events. I have confidence that DNR will continue to follow these safe forest management guidelines... Personally, I believe the building of private homes by developers and private individuals are impacting our watershed in a much more dangerous way than even poor forest activities. Forests are renewable and asphalt and all that it brings with it is permanent. I strongly believe in a good public education system and support our State in raising the money to help keep our public education strong which means using our forests in a responsible way.... [EM2/C1]

Response: Comment noted.

- I realize the responsibility of the DNR to provide funding for the trusts as well as being answerable to the public for safe and responsible forestry practices. It is a hard position to be in. You are a large, visible entity using tax dollars. The public needs to understand the value of the timber industry to our economic well being. As several audience participants stated, education is important and our counties and cities benefit from safe, healthy industry in numerous ways. [EM2/C4]

Response: Comment noted.

- In today's economic climate, it seems reasonable that we need to support all the viable industries in our state... This may be just 15,000+ acres but they all add up when you look at all the timberland set aside in this state... This decision has bigger impacts than this watershed... [EM8/C10]

Response: Comment noted.

LP6 *DNR should not have producing and selling timber as one of its roles.*

- The DNR could be abolished as far as their "timber production" role is concerned... [L43/C5]

Response: The management of trust lands is one of the statutory and Constitutional roles of the Department. One of the fiduciary duties of the DNR as a trustee is to make the trust lands productive for the beneficiaries. AGO 1996, No. 11, at 14. When the trust lands are timbered, making the lands productive (i.e., generate revenue) may involve timber sales that can be accomplished in a manner consistent with state laws of general application. The state forest trust lands managed by the Department in the Lake Whatcom area are currently zoned by Whatcom County and Skagit County as Commercial Forestry and Industrial Forest respectively.

LP7 *Compensation for altered land management*

- DNR has a legal obligation to seek compensation from altered land management; this was not identified in the PDEIS. This statute [RCW 79.01.128] should be recited and discussed in the PDEIS. [L59/C15]

Response: The Department is always willing to consider any proposal that would economically compensate the trusts with at least as much revenue as the Department's management plans. To the extent that adoption of the Lake Whatcom Landscape Plan reduces the revenues that the DNR would have otherwise produced from these lands, compensation to the trust is an issue that must be analyzed and addressed by the Board of Natural Resources. However, it is not an issue that must necessarily be addressed in an environmental impact statement.

RCW 79.01.128 states that "In the management of public lands lying within the limits of any watershed over and through which is derived the water supply of any city or town, the department may alter its land management practices to provide water with qualities exceeding standards established for intrastate and interstate waters by the department of ecology: PROVIDED, that if such alterations of management by the department reduce revenues from, increase costs of management of, or reduce the market value of public lands the city or town requesting such alterations shall fully compensate the department."

LP8 *Different points of view regarding whose interests DNR must benefit.*

- You and others, within the DNR, have expressed concern about your fiduciary responsibility for the generation of revenue for the Trusts. In my discussions with Whatcom County councilmen, they seem to see your responsibilities differently. I was specifically told that your primary responsibility was to manage the lands to benefit existing Whatcom County residents and future generations thereof. If this does not return revenue to the Trusts, however, it benefits Whatcom County then you are fulfilling your fiduciary responsibility. If revenue is returned to the trusts, so much the better, however, not to the detriment of Whatcom County residents. [EM23/C4]

Response: Several trust beneficiaries have lands within the Lake Whatcom watershed, and the State of Washington owes those beneficiaries a fiduciary duty with respect to how the lands are managed. There are both federally-granted trust lands and forest board trust lands located within the watershed. The specific trust beneficiaries are: Common School Construction Fund; Washington State University; State Capitol Building Fund; and both Skagit and Whatcom counties. The trust beneficiaries are institutional in nature, and are not individual residents of Whatcom County. The Board of Natural Resources, which sets the policy direction of the Department, ultimately will consider what is in the best interest of the trusts when they approve a Lake Whatcom Landscape Plan for the forested trust lands.

- I would only consider option 4 or 5. If 5 is from comments from the public, who own the land, this is the one that should be passed. [CC12/C1]

Response: See LP8 [EM23/C4] above. Alternative 5 was developed by the DNR and the Landscape Committee for analysis in the PDEIS.

- Do not sell public lands to private owners. [CC14/C2]

Response: The Board of Natural Resources makes decisions about transactions involving the lands under DNR management, keeping the best interests of the trusts foremost. See LP8 [EM23/C4].

LP9 *Incorporate Scientific Data*

- *Follow the Lake Whatcom Bill:* ... the legislature also instructed DNR to “build on the existing draft Lake Whatcom landscape plan and incorporate both new information from the community and new scientific information when available.”... We have included a review of this PDEIS by Dr. Montgomery to assist your future efforts to incorporate science in the landscape plan. We also request that future environmental documents and analysis rely on current scientific literature. [EM16/C6]

Response: The Department, with the assistance of the DNR Lake Whatcom Landscape Planning Committee, made an effort to gather existing information regarding natural resources, cultural resources, income opportunities and community use of the planning area. One of the benefits of a PDEIS (which is not required) is for reviewers to bring attention to existing information they feel the Department should consider in the analysis of a preferred alternative. All such comments are being referred to the appropriate analysts for their review and consideration. Please also see **EP 4, EP5j and EP7.**

- We ask that DNR follow the direction of the legislature and examine all relevant scientific literature in the field of forest practices, slope stability and impacts of forest practices on water quality and use those studies in writing the Lake Whatcom landscape plan. [EM16/C8]

Response: Comment noted, see above **LP9 [EM16/C6 above].**

LP10 *Include copy of E2SSB 6731*

- I have enclosed E2SSB 6731, the Lake Whatcom Bill, as the bill is missing from the PDEIS. Please include it in the DEIS to ensure the public is well informed about the legislative intent. The current summary is completely insufficient. [EM16/C9]

Response: A copy of E2SSB 6731 is included with this response summary and will be included with the DEIS. It was inadvertently left out of the PDEIS Appendices.

LP11 *Current laws and regulations do not adequately protect resources*

- *Forest practices rules:* Throughout the PDEIS it is optimistically stated that the HCP, the new Forest practice rules and the Watershed Analysis are sufficient. But sufficient for what? The HCP was designed to protect habitat for wildlife such as northern spotted owl, marbled murrelet and several runs of salmonids. Forest practice rules were designed to bring Chinook salmon back from the brink of extinction and Watershed Analysis, while it had reasonable goals, suffered from a systemic lack of scientific rigor. These rules were simply not designed to protect municipal drinking water reservoirs nor did they maintain a particularly high standard for slope stability. The Forest practice rules were designed to reduce sediments in streams rather than in lakes. Sediments that enter a lake remain in the lake. When oxygen levels are low, as happens in Lake Whatcom, phosphorous is released, which in turn feeds potentially toxic algae.

Sediments from logging quickly age a lake. Lake Whatcom is the sole source of drinking water for half of Whatcom County and management activities, like road construction or aggressive logging, that generate sediment will have profound, lasting and costly consequences.

[EM16/C4]

Response: While some individuals might believe that the Forest Practices Act and rules, the existing Lake Whatcom watershed analysis, and the DNR's HCP are insufficient to protect and preserve water quality from the adverse effects of timber removal on state lands, the DNR does not share this perspective. The rules to the Forest Practices Act are co-adopted by the Department of Ecology in addition to the Forest Practices Board to assure compliance with water quality laws (WAC 222-12-010). Washington's forest practices laws, which apply to both state and private forestlands, are perhaps the strictest in North America, especially when it comes to dealing with sediment delivery to water or unstable slopes. Harvesting on unstable slopes is prohibited or strictly regulated. The watershed analysis in the Lake Whatcom watershed was conducted to assess, study, and address the cumulative effects of forestry activities of all landowners within the watershed, rather than just the activities occurring on state lands. It provides protections to water resources that exceed the Forest Practices rules. Finally, the DNR's HCP provides even further protection to water resources than the watershed analysis prescriptions.

With the additional requirements of E2SSB 6731, harvesting and road building on unstable slopes are prohibited altogether on state forestlands in the Lake Whatcom watershed area. In November 2001 the Department of Ecology (DOE) and the Department of Health (DOH) responded to the Commissioner of Public Lands regarding Lake Whatcom water quality and future state forestland management activities (copies are in the PDEIS Appendices). The Commissioner wanted to know what additional water quality measures, if any, should the Department consider beyond the current laws and policies. DOE responded by saying "The controls you describe for the state lands in the Lake Whatcom watershed are currently the state of the art for reducing the risk of pollution from commercial forestland. Properly managed commercial forestland has been recognized as the most benign active land use for watershed protection for some time." DOH wrote "It is our understanding that the Forest Practices Rules and the DNR Forest Resource Plan and HCP were developed to protect the environment: typically, practices that protect the environment usually protect drinking water sources."

- The DNR has a responsibility and a mandate from the legislature to protect drinking water in the Lake Whatcom watershed and to protect the neighborhoods adjacent to DNR lands from landslides and debris torrents caused by logging practices. Our review of the alternatives presented indicates that the only alternatives that achieve this directive are Alternative 4 and Alternative 5. Despite statements to the contrary in the PDEIS, Alternatives 1, 2, and 3 are non-viable because they do not meet the legislative directive. Assertions to the contrary are not well supported by scientific information and contradict well-established scientific literature. Draft environmental review documents should carefully examine current scientific record and present the scientific basis for assertions presented in the documents. [EM16/C2]

Response: Comment noted. See response above to LP12 [EM16/C4].

- *Lake Whatcom Watershed Objectives:* The legislative intent for E2SSB 6731 was clear: protect drinking water quality and public safety in the Lake Whatcom watershed and the PDEIS (Vol. 1, pp 25-56) lists objectives that are consistent with legislative intent. We ask that DNR adopt an alternative that provides the strongest possible protection for drinking water quality and public safety in the Lake Whatcom watershed. [EM16/C5]

Response: Comment noted. See response to **LP12** [EM16/C4] above.

LP12 *Operational feasibility*

- *Economic feasibility for the loggers* (and relationship to the forest industry) Of the alternatives that you presented, I am in favor of Alternative 4, as a compromise, however, this will not be beneficial to the timber industry and may not be economically feasible to any loggers on such a limited basis. [EM23/C3]

Response: Concern raised about the operational ability of loggers to “live with” the DNR’s implementation of the Landscape Plan on state trust lands is related to the DNR’s (and the State’s) fiduciary obligation to make the trust lands productive for the beneficiaries. The DNR’s goal is to harmonize to the maximum extent possible the requirements of E2SSB 6731 with its pre-existing fiduciary obligations to the trust land beneficiaries. Loggers (or the forest industry) are not the beneficiaries of the state trust lands. Rather, the trust beneficiaries are the various institutions of government for which the lands are managed.

- The speaker is tired of clear cutting and what it does to overall environment. Yet, from timber perspective, it may not be worth the time or value to thin. [PM61]

Response: Please see response above to **LP12** [EM23/C3] and to **BE11** [EM21/C1] regarding clearcutting.

LP13 *Global responsibilities*

- At the public meeting, a representative for the logging industry indicated that lumber was needed by the United States (he did not mention the amount that the US actually exports) and if we did not obtain it locally, we would have to import lumber from third world countries and their people would suffer. That is a decision for the third world countries to make. If they wish to sell lumber on the open market, and the US declines to purchase it, another country will. I do not believe this argument holds itself up to even the slightest amount of scrutiny. [EM23/C9]

Response: There are certainly very dynamic national and international supply and demand markets for lumber. It is beyond the scope of the Lake Whatcom Landscape Plan EIS to analyze how harvesting or not harvesting state forestlands in the vicinity Lake Whatcom will affect those markets. Briefly, however, it should be noted that whatever happens on the 15,600 or so acres in this watershed will have little, if any, impact on what happens with timberlands in other countries, and will have little or no impact on global timber supply or demand.

- There is concern about social responsibility. The reality of restricting logging across the state is that it will affect the other areas that will be relied on for the wood consumption. The problem is just being pushed off to others. All things are connected. [PM34]

Response: Comment noted.

LP14 *Against forestry management by DNR in general*

- Everyone wants you to leave the forest alone. Don't butcher the watershed. [CC2/C1]

Response: Please refer to **LP1, LP6, LP8, LP9b** and **LP12** responses above.

LP15 *AG gave inaccurate legal analysis of DNR's and Committee's roles*

- ...there was inaccurate legal analysis in the Jan. 18, 2002, letter from the Attorney General's Office to State Representative Dave Quall, explaining the responsibilities and roles of the committee and DNR. [EM14a/C2]

Response: Comment noted. DNR defers to the experience, expertise and authority of the Attorney General's Office on this matter.

Issues Within DNR's Purview But Outside This Planning Action

- *DNR should not have producing and selling timber as one of its roles – against forestry management by DNR in general*

Discussion: DNR manages about 2.9 million acres of trust uplands in the state and has an obligation to generate income from these lands for trust beneficiaries. Federally granted trust land contribute funding for the construction needs of the state's public schools, the University of Washington, Washington State University, the four regional universities, state institutions, community colleges, state institutions, and the state capitol campus complex. Forest Board trust lands benefit 19 counties across the state, providing for public services such as roads, hospitals, libraries, schools and fire districts.

Approximately 2.1 million acres of trust land are forested, and forest management accounts for 90 percent of the income production from all trust lands, both upland and aquatic. The department does consider alternative approaches to generate revenue from these lands, but so far has identified no immediately viable opportunities for replacing the income from forest management. The forested trust lands also provide other benefits for Washington citizens – recreational opportunities, green space, habitat for plants and animals, and ecological services such as cleaner air and the filtering of water as in the Lake Whatcom area.

- *Manage forests on longer rotations – 200 years – and retain 70 percent of the trees*

Discussion: Adopting a significantly longer rotation age standard would require a thorough examination of the ecological, social and economic consequences and a major policy decision for the Board of Natural Resources.

- *Do not allow clearcutting on state trust lands*

Discussion: The question of whether DNR should continue to use clearcutting as one of its silvicultural alternatives is broader than the Lake Whatcom EIS process. DNR manages forestlands statewide on a sustainable basis, and in many situations final harvest or regeneration harvest of a stand is a sound choice which balances ecological, social and economic objectives.

Issues or Concerns Outside DNR's Purview

- *Global social responsibility: international timber supply and demand issues and environmental standards for timber harvest in other counties*

Response: It is beyond the scope of the Lake Whatcom Landscape Plan EIS to analyze how harvesting or not harvesting state forestlands in the vicinity of Lake Whatcom will affect national and international supply and demand markets for timber. However, whatever happens on the 15,600 or so acres in this watershed will have little, if any, impact on what happens with timberlands in other countries, or on global timber supply or demand. The same is true of harvest from other DNR-managed lands across the state of Washington. It is beyond the purview of DNR to evaluate the forest practices standards outside the state of Washington.

- *Educating the public about the value of the timber industry to our economic well being*

Discussion: DNR's primary obligations are to manage the lands in its control effectively to protect public resources, ensure their long-term health and viability, provide trust income to beneficiaries, and make the lands available for multiple public uses and benefits compatible with meeting the trust obligations. DNR reports regularly to the Legislature and the public about the full range of outcomes from the lands under its management, including the economic outcomes. But it is appropriate for other parties such as private landowners and timber industry participants to help the public understand the broader economic importance of the timber industry locally and nationally.

CERTIFICATION OF ENROLLMENT

ENGROSSED SECOND SUBSTITUTE SENATE BILL 6731

Chapter 205, Laws of 2000

56th Legislature
2000 Regular Session

LAKE WHATCOM LANDSCAPE MANAGEMENT

EFFECTIVE DATE: 6/8/00

Passed by the Senate March 7, 2000

YEAS 44 NAYS 0

BRAD OWEN

President of the Senate

Passed by the House March 1, 2000

YEAS 98 NAYS 0 CERTIFICATE

I, Tony M. Cook, Secretary of the Senate of the State of Washington,
do hereby certify that the attached is ENGROSSED SECOND SUBSTITUTE
SENATE BILL 6731 as passed by the Senate and the House of
Representatives on the dates hereon set forth.

CLYDE BALLARD

Speaker of the

House of Representatives

TONY M. COOK

Secretary

FRANK CHOPP

Speaker of the

House of Representatives

Approved March 29, 2000

FILED

March 29, 2000 - 2:59 p.m.

GARY LOCKE

Governor of the State of Washington
State of Washington

Secretary of State

ENGROSSED SECOND SUBSTITUTE SENATE BILL 6731

AS AMENDED BY THE HOUSE

Passed Legislature - 2000 Regular Session

State of Washington
Regular Session

56th Legislature

2000

By Senate Committee on Ways & Means (originally sponsored by Senators Spanel and Gardner)

Read first time 02/08/2000.

AN ACT Relating to Lake Whatcom; and creating a new section.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

{+ NEW SECTION. +} Sec. 1. The Lake Whatcom landscape management pilot project is created.

The department of natural resources shall develop a landscape plan regarding state-owned forest lands in the Lake Whatcom watershed area. Where appropriate, the department will consult with other major forest landowners in the watershed and shall involve watershed residents in management activities. The department shall consult with the Lake Whatcom management committee for the development of the landscape plan, to review the site-specific activities and make recommendations. The interjurisdictional committee shall include two members of the public who have an interest in these activities. The landscape plan shall address at least the following topics:

(1) Establishing riparian management zones along all streams, as classified under chapter 4, Laws of 1999 sp. sess. The department shall manage lands within such zones to protect water quality and riparian habitat. The interjurisdictional committee may recommend to the department restrictions upon timber harvest and yarding activities on a case-by-case basis;

(2) Harvest and road construction upon potentially unstable slopes shall be carefully regulated;

(3) On unstable slopes, new road construction shall be prohibited and old road reconstruction shall be limited;

(4) A sustained yield model specific to the Lake Whatcom watershed that encompasses the revised management standards and that is consistent with the sustained yield established by the board of natural resources shall be created and implemented;

(5) The department should build on the existing draft Lake Whatcom landscape plan and incorporate both new information from the community and new scientific information when available; and

(6) The development of a road management plan for the watershed. The landscape plan shall be completed and implementation initiated by June 30, 2001. Timber harvest and all road construction in the watershed on state land shall be delayed until the plan is completed.

Passed the Senate March 7, 2000.

Passed the House March 1, 2000.

Approved by the Governor March 29, 2000

Filed in Office of Secretary of State March 29, 2000

Lake Whatcom PDEIS Public Comment Tracking Log

Comments Sorted by Document # and Comment #.

L = Letter

CC = Comment cards from Oct. 10, 2002 public meeting

EM = Email

PM = Oct. 10, 2002 public meeting oral comments

Comment Code	Commenter Name	Affiliation/Organization
L1	Ed Brinson	Self
L2	Paul Kriegel	Goodyear Nelson Hardwood Lumber Co. Inc
L3	Karl G. Stout	Karl G. Stout and Sons
L4	Karl G. Stout – 2 nd Letter	Karl G. Stout and Sons
L5	Peter Costanti	Self
L6	Sue Abts	Self
L7	Peter Costanti – 2 nd Letter	Self
L8	Edward Halasy	Self
L9	Aubrey J. Stargell	Lake Whatcom Watershed Forestry Forum
L10	Aubrey J. Stargell	Lake Whatcom Watershed Forestry Forum
L11	Dee Young	Self
L12	Gerald G. ? (Name Illegible)	Self
L13	Ken Dunland	Self
L14	Rod L. Remington	Self
L15	Sharon K. ? (Name Illegible)	Self
L16	Sandra Nolery	Self
L17	Dirinda Vennen	Self
L18	Josh Perry	Self
L19	Kathy Greenwood	Self
L20	John Abts	Self
L21	Steven L. McDonald	Self
L22	Don Saunders	Self
L23	Dan Stanley	Self
L24	Kristine G. Blow	Self
L25	Axel Schuessler	Self
L26	Paul Hansen	Self
L27	David Harris and Mary Matyas	Self
L28	Ellen Dodson, President, Board of Directors and Russ Pfeiffer-Hoyt, School Director	Mt. Baker School District
L29	Nancy Grayum	Self
L30	Tom Westergreen	Self
L31	Joan Casey	Self
L32	Doug and Michelle Hurley	Self
L33	Del Leu	Self
L34	Cindy Wallis	Self
L35	George C. Ryker	Self
L36	Richard Gantman, Superintendent	Mt. Baker School District

L37	Doti Leu	Self
L38	James E. Cates	Self
L39	Chuck Parker	Buse Timber and Sales
L40	Jamie Berg	Self
L41	Lita Wallis	Self
L42	Lisa Stevenson	Self
L43	Lois Garlick	Self
L44	Donald Leu	Self
L45	Randy Stevenson	Self
L46	Brian Wilmot	Self
L47	Susan Tercek	Self
L48	Michael Menard	Self
L49	Group	Lake Whatcom Management Committee
L50	Charles and Charlene Law	Self
L51	Robin Ireland	Self
L52	Laurie Caskey-Schreiber	Whatcom County Council Member
L53	Sue and Ed Abts – 2 nd letter	Self
L54	Laurie and Terry Justin	Self
L55	Anne Zuk	Self
L56	George Zuk	Self
L57	Laurie Caskey-Schreiber – 2 nd letter	Lake Whatcom Management Committee
L58	Greg Hueckel	WDFW – Habitat Program
L59	Malcolm R. Dick Jr., Washington Manager	American Forest Resource Council
L60a	Marian Beddill	NW Ecosystem Alliance
L60b	Henry Lagergren	NW Ecosystem Alliance
L60c	Jo Kaus	NW Ecosystem Alliance
L61	Bruce Lippke	UW- Rural Tech Initiative
EM??	Paul Kriegel – 2 nd correspondence	Goodyear Nelson Hardwood Lumber Co. Inc
EM1	Don Wallace	Self
EM2	Cathy Brooking	Self
EM3	Lori Hansen	Self
EM4	Richard Gantman – 2 nd correspondence	Mt. Baker School District - Superintendent
EM5	Ellen Dodson / Russ Pfeiffer-Hoyt - 2 nd Correspondence	Mt. Baker School District – Board of Directors
EM6	Kerri Cook	Self
EM7	Gene Knutson	Bellingham City Council
EM8	Richard Whitmore	Self
EM9	Group	Lake Whatcom Management Committee
EM10	Barb Wavada	Self
EM11	Phillis Finet – cover letter	Lake Whatcom Management Committee
EM12	Tom Pratum	Self
EM13	Tom Pratum	North Cascades Audubon Society
EM14a	Sherilyn Wells	Clean Water Alliance
EM14b	Sherilyn Wells	Self
EM14c	Tim Paxton	Clean Water Alliance
EM15	Tim Paxton – 2 nd correspondence	Clean Water Alliance
EM16	Lisa McShane / David Montgomery	NW Ecosystem Alliance
EM17	Bruce Lippke – 2 nd correspondence	University of Washington
EM18	Steve Reed	Self
EM19	Erin Moore	NW Mushroomers Association

EM20	Bruce Lippke – 3 rd correspondence	Self
EM21	Jamie K. Donaldson	Self
EM22	Stephanie Thompson	Self
EM23	Lance Hillengass	Self
EM24	Becky Kelley	Washington Environmental Council
EM25	Malcolm R. Dick, Washington Manager	American Forest Resources Council
EM26	Lucretia Williams / James Breitenstein	Self
EM27	David Wallin	WWU – Huxley College of Env. Studies
EM28	Gerry Millman	Self
CC6	Steve Reed – 2 nd correspondence	Self
CC8	Dave Scott	Self
CC12	Norman Lewis	Self
CC14	Laurie Dodson	Self
CC15	Brendi Sample	Self
LC1	Tom Edwards	Lummi Nation
LC2	Richard R. Horner, Ph.D.	Self
LC3	Keith Anderson	Self
LC4	Jon Wolfe	Sudden Valley Community Association
LC5	Group	NW Ecosystems Alliance

Lake Whatcom PDEIS Public Comment Tracking Log

Comments Sorted by Document # and Comment #.

L = Letter **CC** = Comment cards from Oct. 10, 2002 public meeting
EM = Email **PM** = Oct. 10, 2002 public meeting oral comments
LC = Late Comments

Comment Code	Commenter Name	Affiliation/Organization
L20	Abts, John	Self
L6	Abts, Sue	Self
L53	Abts, Sue and Ed	Self
LC3	Anderson, Keith	Self
L60a	Beddill, Marian	NW Ecosystem Alliance
L40	Berg, Jamie	Self
L24	Blow, Kristine G.	Self
L1	Brinson, Ed	Self
EM2	Brooking, Cathy	Self
L31	Casey, Joan	Self
L52	Caskey-Schreiber, Laurie	Whatcom County Council Member
L57	Caskey-Schreiber, Laurie	Self
L38	Cates, James E.	Self
EM6	Cook, Kerri	Self
L5	Costanti, Peter	Self
L7	Costanti, Peter	Self
EM25	Dick, Malcolm R. Jr.	American Forest Resource Council
L59	Dick, Malcolm R. Jr.	American Forest Resource Council
L28	Dodson, Ellen and Pfeiffer-Hoyt, Russ	Mt. Baker School District – Board of Directors
EM5	Dodson, Ellen and Pfeiffer-Hoyt, Russ	Mt. Baker School District – Board of Directors
CC14	Dodson, Laurie	Self
EM21	Donaldson, Jamie K.	Self
L13	Dunland, Ken	Self
LC1	Edwards, Tom	Lummi Nation
L36	Gantman, Richard	Self
EM4	Gantman, Richard	Mt. Baker School District – Superintendent
L43	Garlick, Lois	Self
L29	Grayum, Nancy	Self
L19	Greenwood, Kathy	Self
L8	Halasy, Edward	Self
EM3	Hansen, Lori	Self
L26	Hansen, Paul	Self
L27	Harris, David and Matyas, Mary	Self
EM23	Hillengass, Lance	Self
LC2	Horner, Richard R. Ph.D.	Self
L58	Hueckel, Greg	WDFW – Habitat Program
L32	Hurley, Doug and Michelle	Self
L51	Ireland, Robin	Self

L54	Justin, Terry and Laurie	Self
L60c	Kaus, Jo	NW Ecosystem Alliance
EM24	Kelley, Becky	Washington Environmental Council
EM7	Knutson, Gene	Bellingham City Council
L2	Kriegel, Paul	Goodyear Nelson Hardwood Lumber Co. Inc
EM0	Kriegel, Paul	Goodyear Nelson Hardwood Lumber Co. Inc
L60b	Lagergren, Henry	NW Ecosystem Alliance
L50	Law, Charles and Charlene	Self
L33	Leu, Del	Self
L44	Leu, Donald	Self
L37	Leu, Doti	Self
CC12	Lewis, Norman	Self
L61	Lippke, Bruce	UW – Rural Tech Initiative
EM17	Lippke, Bruce –Second correspondence	UW
EM20	Lippke, Bruce – Third correspondence	UW
L21	McDonald, Steven L.	Self
EM16	McShane, Lisa / Montgomery, David	NW Ecosystem Alliance
L48	Menard, Michael	Self
EM28	Millman, Gerry	Self
EM19	Moore, Erin	NW Mushroomers Association
L16	Nolery, Sandra	Self
L39	Parker, Chuck	Buse Timber and Sales
EM14c	Paxton, Tim	Clean Water Alliance
EM15	Paxton, Tim	Clean Water Alliance
L18	Perry, Josh	Self
EM12	Pratum, Tom	Self
EM13	Pratum, Tom	North Cascades Audubon
EM18	Reed, Steve	Self
CC6	Reed, Steve	Self
L14	Remington, Rod L.	Self
L35	Ryker, George C.	Self
CC15	Sample, Brendi	Self
L22	Saunders, Don	Self
L25	Schuessler, Axel	Self
CC8	Scott, Dave	Self
L23	Stanley, Dan	Self
L9	Stargell, Aubrey J.	Lake Whatcom Watershed Forestry Forum
L10	Stargell, Aubrey J.	Lake Whatcom Watershed Forestry Forum
L42	Stevenson, Lisa	Self
L45	Stevenson, Randy	Self
L3	Stout, Karl G.	Karl G. Stout & Sons Forestry
L4	Stout, Karl G. - 2 nd letter	Karl G. Stout & Sons Forestry
L47	Tercek, Susan	Self
EM22	Thompson, Stephanie	Self
L17	Vennen, Dirinda	Self
EM1	Wallace, Don	Self
EM27	Wallin, David	WWU – Huxley College
L34	Wallis, Cindy	Self
L41	Wallis, Lita	Self

EM10	Wavada, Barb	Self
EM14a	Wells, Sherilyn	Clean Water Alliance
EM14b	Wells, Sherilyn	Self
L30	Westergreen, Tom	Self
EM8	Whitmore, Richard	Self
EM26	Williams, Lucretia / Breitenstein, James	Self
L46	Wilmot, Brian	Self
LC4	Wolfe, Jon	Sudden Valley Community Association
L11	Young, Dee	Self
L55	Zuk, Anne	Self
L56	Zuk, George	Self
L12	Name Illegible	Self
L15	Name Illegible	Self
L20	Name Illegible	Self
	GROUPS	
L49	Group	Lake Whatcom Management Committee
EM9	Group	Lake Whatcom Management Committee
LC5	Group	NW Ecosystems Alliance

APPENDIX C

Comments Received After October 28, 2003

The following five comments were received after the formal comment period closed and due to time constraints could not be processed and responded to by all the analysts in the same fashion as the other comments. However DNR values receiving this additional input and will consider it during preparation of the DEIS.

Comment LC1:

LUMMI INDIAN BUSINESS COUNCIL
2616 KWINA ROAD BELLINGHAM, WASHINGTON 98226

Barbara MacGregor
SEPA Center
Washington State Department of Natural Resources (DNR)
1111 Washington Street SE
MS: 47015, Olympia WA 98504-7015

Dear Barbara MacGregor:

Lummi Nation would like to extend their thanks for the opportunity to provide comments and recommendations on the Preliminary Draft Environmental Impact Statement (PDEIS) regarding the DNR Lake Whatcom Watershed Land Holdings.

Beyond the memory of man, Lummi Nation utilized this area for its resources for our physical, spiritual and historical values taught by our ancestors, and we still respect those wisdom's and teachings today. All resources are respected by our people, because those resources are "Sche'lang'en" means, in the Lummi Language "Way of Life".

It shall be the policy of the Lummi Nation to preserve and manage cultural resources in ways that contribute to meeting the social; environmental; spiritual, economic and other needs of present and future generations.

Lummi Nation will provide leadership and technical assistance in the preservation, protection and conservation of cultural resources by developing a culturally appropriate cultural resources management plan. Lummi Nation will sponsor educational programs for the general public and training programs for tribal members and employees and by consulting and cooperating with other governmental agencies

Here are some concerns Lummi has regarding the PDEIS:

1. Alternative 1&2

- ◆ Increased delivery of sediment to streams will impact our ceremonial sites.

- ◆ Roads and Landing Locations would have adverse impacts to cultural resources.
- ◆ Riparian Management Zones (RMZ) along our ceremonial areas doesn't protect our concerns. (See matrix section for recommendations).
- ◆ Allow some silvicultural thinning and tree species conversions within the RMZ.
- ◆ Provide the most acreage available for the harvesting of special forest products
- ◆ Other cultural sites that are not recorded will be at risk.
- ◆ Consult with Lummi when RMAP is being proposed to avoid impacts for cultural areas.
- ◆ Consult with Lummi when chemical application applies.

2. Alternative 3 & 4

- ◆ Lummi Nation will develop a cultural resources management plan what will consisted of state laws and tribal title 40 code and tribal resolutions.

Lummi Nation and DNR should have a discussion regarding the MOU OR MOA regarding tribal access for gathering and hunting under Section 5 of the Point Elliott Treaty on open and unclaimed lands.

There will be additional comments and recommendation submissions during this process.

Thank-You
"Tom Edwards"

RESPONSE:

The Commissioner of Public Lands is currently communicating with the state's federally recognized tribes, on a government-to-government level, regarding issues such as MOUs, consultation and notification. There also have been changes in the internal procedures of the Forest Practices Division of DNR, implementing WAC 222-16-050(5)(k) and WAC 222-20-120, rules and regulations dealing with cultural resource protection. As a result, the potential impacts to cultural resources under the five alternatives have changed.

Briefly, the procedural changes include:

- 1) The Tribe(s) notifies DNR of the geographic area for them to receive forest practice applications (FPAs).
- 2) DNR sends electronic notice to the Tribe(s) of FPAs in those areas.
- 3) Tribe(s) identifies lands that contain cultural, historic or archaeological resources and contacts DNR.
- 4) This triggers a meeting with the objective of agreeing on a plan for protecting the archaeological or cultural value of the area.

This procedure could function as part of the consultation process under Section 106 of the National Historic Preservation Act. As a result of these changes, the Lummi and Nooksack Tribes can meet with DNR on each FPA where cultural sites may be affected and to voice their concerns. DNR will also continue to use the TRAX system or a GIS cultural resource layer to identify cultural resources recorded with the State Office of Archaeology and Historic Preservation. This increases the level of protection given to cultural resources under alternatives 1 and 2 to a level equivalent to Alternatives 3, 4 and 5. DNR can deal with protections on a case-by-case basis as in alternatives 1 and 2, or programmatically through a Cultural Resource Management Plan, MOUs and/or MOAs as in alternative 3, 4 and 5. The new procedure will be reflected in the Draft EIS.

Comment LC2:

RICHARD R. HORNER, Ph. D.

230 N. W. 55~1-4 STREET
SEATTLE, WASHINGTON 98107

TELEPHONE: (206)782-7400
FACSIMILE : (206)781-9584 .

November 13,2002

Mr. William J. Wallace, Regional Manager
Washington State Department of Natural Resources
Northwest Region
919 North Township Street
Sedro-Wooley, WA 98284-9384

Dear Mr. Wallace:

At the request of the Northwest Ecosystem Alliance I reviewed the Preliminary Draft Environmental Impact Statement ("PDEIS")for the Lake Whatcom Landscape Plan (" the Plan". My review concentrates on the plan elements pertinent to my background and experience, which include water resources (wetlands, streams, and the lake), water quality and quantity, sediment generating processes, and prevention or minimization of soil loss. After summarizing my background and qualifications in these areas, this letter presents my assessment of the PDEIS.

PROFESSIONAL BACKGROUND AND QUALIFICATIONS

I have 36 years of professional experience, 32 teaching at the college and university level. For the last 25 years I have specialized in research, teaching, and consulting in the area of storm water runoff and surface water management. I received a Ph. D. in Civil and Environmental Engineering from the University of Washington in 1978, following two Mechanical Engineering degrees from the University of Pennsylvania. Although my degrees are all in engineering, I have had substantial course work and practical experience in aquatic biology and chemistry. For 12 years beginning in 1981 I was a full-time research professor in the University of Washington's Department of Civil and Environmental Engineering. I now serve half time in that position and have adjunct appointments in two additional departments (Landscape Architecture and the College of Forest Resources' Center for Urban Horticulture). While my research and teaching continue at a somewhat reduced level, I spend the remainder of my time in private consulting through a sole proprietorship. My full credentials are available upon request.

My research, teaching, and consulting embrace all aspects of stormwater management, including determination of pollutant sources; their transport and fate in the environment; physical, chemical, and ecological impacts; and solutions to these problems through better structural and non-structural management practices. A substantial area within the stormwater management field involving all of these considerations is the understanding

of aquatic resource problems caused by runoff from sites *of* soil disturbance, like logging roads and other construction projects and the timber extraction sites themselves, and how best to avoid or minimize these problems.

I have conducted numerous research investigations and consulting projects on these subjects. Serving as a principal or co-principal investigator on more than 40 research studies, my work has produced two books, approximately 30 papers in the peer-reviewed literature, and over 20 reviewed papers in conference proceedings. I have also authored or co-authored more than 75 scientific or technical reports. In addition to graduate and undergraduate teaching, I have taught many continuing education short courses to professionals in practice. My consulting clients include federal, state, and local government agencies; citizens' environmental groups; and private firms that work for these entities, primarily in Washington, California, British Columbia, and Oregon but in some instances elsewhere in the nation.

I have been the principal investigator *on two* extended research projects relevant to the subjects of this letter. I led an interdisciplinary team for 11 years in studying the effects of human activities on freshwater wetlands of the Puget Sound lowlands. This work led to a comprehensive set of management guidelines to reduce negative effects and a published book detailing the study and its results. The second effort is in its ninth year and involves an analogous investigation of human effects on Puget Sound's salmon spawning and rearing streams. These two research programs have had broad sponsorship, including the U. S. Environmental Protection Agency, the Washington Department of Ecology, and a number of local governments.

I have been active in the area of construction site stormwater management for approximately 17 years. During that time I have: (1) performed research on the performance of certain best management practices ("BMPs") intended to prevent soil erosion or interdict sediment transport, (2) functioned as an independent mediator on a sensitive road construction project, (3) served on a technical advisory committee for a very large research project of this type, (4) taught numerous courses on the subject, and (5) inspected many construction sites myself. My research pertained to the effectiveness of soil-covering mulches and blankets in preventing erosion and of silt fences and sedimentation ponds in stopping the transport of sediments entrained in runoff beyond the construction site. As a mediator, my responsibility was to reconcile and make judgments and recommendations based on the information coming from the contractor, the sponsoring city road agency, the city's environmental inspectors, independent consultants, and my own observations. On the advisory committee I had an oversight role on behalf of the plaintiffs for a federal court ordered study sponsored by the California Department of Transportation as defendant. This study measured the effectiveness of 16 mulches and blankets and certain soil preparation techniques. I have taught continuing education courses on construction site pollution control, ranging from a half day to six days in length, more than 30 times to consultants, regulators, and contractors.

I have substantial familiarity and experience with Whatcom County and Lake

Whatcom, the physiography and biology of the environment in the vicinity, and the status of stormwater management in the area. In 1993 I served as a mediator on a proposed lakeshore development moratorium among county, water district, and local community representatives. Over the years I have reviewed a number of documents and proposals relating to management of the area's water resources, most of which directly concerned Lake Whatcom. I presented related testimony to hearings boards on two occasions.

GENERAL ASSESSMENT OF THE PDEIS

It is my opinion that, in its present form, Alternative 1, the "no-action" option, is inconsistent with state law and must be modified to bring it into conformance with the prevailing statute in the next issue of the Plan completed under the EIS process. Moreover, the alternative and many elements within it are far out of step with key objectives stated for the Lake Whatcom Landscape on pages 25 and 26 of the PDEIS. In addition, the analysis performed on the alternative ignored critical circumstances existing in the watershed and, consequently, produced an overly optimistic assessment of its potential impacts. The specification and analysis of this and any other alternative considered must adhere to the objectives, adopted after deliberation by the legislatively constituted Landscape Planning Committee, and must properly take into account all governing conditions in reaching conclusions. While Alternative 2 incorporates the minimum provisions to comply fully with all legal requirements, it still does not represent a thorough application of the objectives. The unique status of a drinking water reservoir warrants strict attention to these objectives in the development, assessment, and eventual adoption of an alternative. The remainder of my letter gives my specific comments on the PDEIS and, in the course of doing so, elaborates on these opinions.

SPECIFIC COMMENTS

1. State legislation specifying the Plan states, "On unstable slopes, new road construction shall be prohibited and old road reconstruction shall be limited." However, Alternative 1 proposes almost 3 miles of new roads in such areas. For reconstruction in unstable or potentially unstable locations, evaluation by a "DNR specialist" would determine the course of action. The independence of the DNR's own employee is doubtful in making these sensitive determinations. The PDEIS thus gives no sense of how and to what degree, or even if, the department would "limit" old road reconstruction on unstable slopes. The law further mandates, "Establishing riparian management zones along all [emphasis added] streams...", but the alternative omits this protection for Type 5 streams.

Response: Alternative 1 represents standard DNR management, prior to the direction provided by Senate Bill 6731. Only Alternatives 2 through 5 manage according to that legislation, including those strategies related to road reconstruction on unstable slopes.

2. The first 8 objectives for the Lake Whatcom Landscape on pages 25 and 26 of the PDEIS fit within the scope of this letter. The first objective is to ensure no significant risk from forest management-related mass wasting events. Objectives 2

to 6 and 8 express intentions to "maintain" (or "protect") and "restore" (or "increase") various aquatic resources or conditions supporting resources, specifically:

- Objective 2-the sediment regime within the range of natural variability;
- Objective 3-riparian and wetland habitat;
- Objective 4-the forest hydraulic regime within the range of natural variability;
- Objective 5-water quality;
- Objective 6-diversity of habitat conditions; and
- Objective 8-soil productivity and health.

Objective 7 is to retain features that support mature forest functions. As subsequent comments show, Alternative 1 pays little heed to these objectives. Many of its provisions are counter to maintenance and protection, and its two references to restoration are vague and convey no commitments (see next comment). Even the more protective Alternative 2 is no better in terms of restoration. Alternatives 3 and 4, in contrast, give the commitments missing in the first two alternatives, and the whole thrust of Alternative 5 is toward protection and restoration. The Washington State Department of Health in its November 27, 2001 letter included in the PDEIS appendices says that, "Site-specific recommendations identified by that process [the Lake Whatcom Landscape Plan advisory committee] related to enhancing water quality should also be considered." I would go farther to say that the excellent objectives set by the committee should be an absolute foundation for guiding the EIS process and devising the management strategy for the watershed's forests.

2. The only provisions of Alternative 1 that could be considered to be restorative are, "Mitigation work on orphaned roads . . . where a clear risk to public safety of potential for resource damage exists . . . " (under Objective 2) and a strategy to, "Identify, prioritize, and replace fish-blocking culverts . . ." (under Objective 6). However, neither plan comes with a commitment to a specific level or timing of action, according to which a certain amount of restoration would occur. The first provision appears to address each instance individually and takes no account of the cumulative effects of past poor practices. Blocking culvert replacement would be carried out only, "...during planned management activities or during implementation of the Road Maintenance & Abandonment Plan." There is no commitment to replace all blocking structures expeditiously, as there should be to achieve true fish passage restoration. Alternative 2 adds no restoration plans, whereas Alternatives 3 and 4 give important commitments to orphaned road mitigation and blocking culvert replacement within either 3 or 2 years, respectively, of the Plan's adoption.

Response: Alternative 2 reflects the timing required by State Law for Road Maintenance and Abandonment Plans to be completed. The Northwest Region of the DNR is currently scheduled to finish work well ahead of 2015, but this comment is correct that there is not a formal timeline for completion under this alternative.

4. DNR trust lands constitute 48 percent of Lake Whatcom's watershed and produce 35 percent of the lake's inflow, 96 percent of that quantity as surface runoff. This large presence gives the department the greatest controlling influence on the ecosystem and drinking water quality of any jurisdiction, a position demanding its responsibility in ensuring no further degradation originating in its zone. Since deterioration has occurred and is well documented, DNR is further obligated to perform restoration projects to reverse degradation trends. It has always been exceptionally ironic to me that, while much of even this rich nation subsists with relatively poor quality water sources requiring massive and costly treatment to reach minimal potable quality, the Whatcom County community has what until recently was a high quality source, which it has allowed to degrade for the short-term gains produced by allowing more and more intrusions into the watershed.

Response: The extent that land use influences water quality of the lake depends on more than the proportion of surface flow contribution. The type and amount of pollution are also significant factors. Therefore the "controlling influence" should not be based on surface flow volumes alone.

5. In the face of DNR's key role in the watershed and its hydrology and the recent history of water quality and ecological losses, Alternative 1 would allow 71.5 percent (11200 of 15657 acres) of the trust lands definitely to be open to timber harvesting, while up to an additional 22.8 percent (3577 of 15657 acres) in unstable areas could be logged, for a total of more than 94 percent of DNR's property as an economic zone. Clear cutting (euphemistically, "regeneration harvesting") would be the rule, accounting for 60.5 percent of the logging (89 of 147 acres harvested annually). With its 48 percent ownership of the watershed, that means that as much as 45 percent of the entire lake catchment could eventually be mostly stripped of forest cover, more than 27 percent of it clear cut. The PDEIS does not report how much of the DNR land has been logged up to the present, a point at which Lake Whatcom has already suffered considerably; but the amount surely would be dwarfed by what could be cut in the future. The document takes pains to make the point in several places that impacts would not be the same as in the past with more environmentally benign practices in the future. However, even if improved procedures decrease pollutant yields and other forms of environmental harm, greater presence is very likely to undo much or all of the benefits and lead to undiminished, or even increased, burdens on the aquatic resources.
6. The PDEIS notes that, under conditions characteristic of the area, substantial overland flow occurs only when the forest duff is removed, as it would be in road building and highly disruptive logging operations. As noted below, the increased surface runoff to the streams and lakes would carry with it eroded sediments and the nutrients they contain. Alternative 1 does not outline sufficient improvements in practices to counteract the proposed great expansion of its economic activities.
7. Alternative 1 is predicated on the construction of 61 miles of new logging roads

(2.7 miles in unstable or potentially unstable areas), adding to the 44 miles now active (a 239 percent increase) and the 42 miles of orphaned roads (representing a 170 percent increase in total road disturbance over the present state). Grizell, in his 2001 report included in the PDEIS appendices, stated that almost all forest-related surface erosion is associated with forest roads. While better road building and maintenance practices might stem some of the erosion that occurred in the past, it is most improbable that methods can be improved enough to prevent a substantial net increase associated with an approximate doubling of the road presence.

Response: The road lengths given in the PDEIS were the total length of road that would be built over the entire harvest rotation of each alternative. Many of those roads would receive short-term use and would be abandoned within the first decade of construction. Once roads are abandoned, they become overgrown with vegetation, and the erosion potential returns to pre-construction levels. The length of active road would never be double what currently exists.

8. Grizell additionally noted that orphaned forest roads are the primary trigger of mass wasting episodes on timber harvesting lands. Thus, DNR should institute a strong program to mitigate these sources quickly, instead of taking the non-committal approach of Alternatives 1 and 2, which abrogates its charge under Objective 1. Its obligation to do so is heightened in the context of its plans to expand logging and the road system so much, in that mitigation of the orphaned road sources of sediment contribution to the lake could compensate, at least in part, for the increases that will follow its expansion. Mass wasting is estimated to account for sediment yield 2.3 times the background amount, a far greater and hence more crucial anthropogenic source to bring under control than surface erosion.

Response: The strategies for Alternatives 1 and 2 state that “Mitigation work on orphaned roads will be done where a clear risk to public safety or potential for resource damage exists and accessing the site will not cause greater resource damage or public risk.” As the response to #3 above indicates, the DNR is striving to complete this work quickly.

9. The preceding comments have dwelled on the proposed extension of disturbance, especially in Alternative 1, and absence of restoration commitments in the first two alternatives. This and subsequent comments are concerned with environmental factors that make these faults in the alternatives of special concern. Several physiographic features of the area are highly conducive to relatively large amounts of sediment and related pollutant generation associated with disturbance.

Response: The roads that contributed to the mass wasting events referred to in this comment never received abandonment work of any kind. Most were constructed prior to the 1940s and have remained unused since that time. They therefore fit the definition of

an “orphaned” road.

10. First, the DNR lands are very wet, with an annual average of up to 80 inches of precipitation, which is potential surface runoff when tree interception, forest duff storage, infiltration, and evapotranspiration opportunities are gone. Furthermore, a large share of the trust lands lie in the "rain-on-snow" zone (approximately 1600 to 2600 ft in elevation). This zone can receive either snow or rain, depending on temperature, and is prone to very large runoff volumes and peak flow rates caused by a lot of rain falling on accumulated snow. Grizell attributed the greatest potential for hydrologic effects to this condition.
11. Secondly, the area's soils are relatively thin and composed of cohesionless gravels, sands, and fines. Such soils produce a rapid surface runoff response to precipitation without duff and the other features and mechanisms of a Pacific Northwest forest that largely attenuate runoff production. When exposed to precipitation and runoff, these soils are highly erosive. Once in transport, the finer fractions settle reluctantly. All of these factors make substantially increased sediment transport to the lake likely with more roads and timber harvest.
12. Some 50 streams feed into Lake Whatcom, the majority flowing from the DNR lands via steep ravine courses. High velocity flow on steep gradients without flood plains produces great shear stresses that erode the beds and banks, adding to the sediment load and offering no opportunity for settling and sediment storage. Far worse, most of the mass wasting occurs in these channels.
13. Grizell acknowledged the relatively low large woody material presence in the Lake Whatcom feeder streams, generally a consequence of past debris torrents that swept logs away. The attendant destruction of the riparian zones, along with past logging up to streams, provides a poor source of new wood. This feature also inhibits sediment settling and storage. Overall, then, meteorology, plus erosive soil characteristics and mass wasting vulnerability, plus efficient sediment transport add up to a high sediment input to Lake Whatcom when its watershed is disturbed.

Response: Forest duff storage, infiltration, and evaporation are not gone because of timber harvest. Except in areas of extreme disturbance, the predominant subsurface transport of water to stream channels will continue. Science and history show this to be true. In comparison with the proposed alternatives in the PDEIS, forest land in the watershed has been abused for more than a century. Yet there is still soil and forest vegetation on the steep slopes.

14. The water quality issue most threatening to drinking water quality from the Lake Whatcom source is increased phosphorus loading, which stimulates algal growth and sets in motion the whole damaging process of eutrophication. Larger algal production not only means more plankton in the water, but generally also leads to a change in forms from predominantly diatoms at low enrichment, to filamentous

green algae, and then to blue-green types at the highest nutrient concentrations. This succession has many negative ecological and aesthetic effects, but from the drinking water standpoint, it can mean a greater filtering requirement to remove suspended matter, treatments to adjust unpleasant tastes and odors created by algae, and, most worrisome, health-threatening organochlorine chemical production when disinfecting chlorine contacts organic compounds in algal cells. Some of these by-products are recognized carcinogens, and others may be.

15. Large algal biomass dying and sinking to the bottom of the lake decreases dissolved oxygen as bacteria use it up in the decay process. A fully or nearly anaerobic state permits chemical reactions that release into soluble forms of both phosphorus and mercury that had been sequestered with the lake's sediments. Phosphorus release accelerates eutrophication. Mercury is a virulent toxin to all life and thus another concern in drinking water. The situation described is well known to exist in Basin 1 of Lake Whatcom, from which drinking water is drawn. Phosphorus and mercury are two of the four water pollutants (along with PCBs and bacteria) identified by the Washington Department of Ecology as leading matters of concern in the lake.
16. Phosphorus is a constituent of soil and vegetative tissue. It enters water when runoff erodes soil and when both soil and vegetation enter water through mass wasting. These additions greatly raise phosphorus concentrations. The PDEIS acknowledges, for example, that Smith Creek experienced an approximate ten-fold increase following a mass-wasting event. When it is considered that the flow would also have been much elevated, and that loading equals concentration times flow volume, the total phosphorus mass entering the lake must have been orders of magnitude above background levels during an equivalent period. In fact, 43 percent of the entire sediment loading expected from forestry activities over 90 years, and presumably a similar amount of phosphorus export, was estimated to be from mass wasting during one event in January 1983.
17. The PDEIS, often spoken through Grizell's report, attempts to make several points establishing that, in its view, all of the issues just recounted amount to little with respect to drinking water and ecological concerns in Lake Whatcom, opining that: (1) large inputs occur rarely, for example only during an 80-to 100-year frequency event like that in January 1983; (2) this pollution of the lake and other episodes in the past were functions of poor practices and will not recur, at least at such magnitude, with better operations; (3) these additions are remote from the drinking water intakes, into the voluminous Basin 3, isolated from the remainder of the lake by a sill; (4) phosphorus export mainly occurs in the winter, when algae are growing little; and (5) sediment phosphorus is already so abundant that new additions will not increase releases during low oxygen conditions. These arguments are speculations that are disputable through other speculations or refuted by logic. Actually, with the high stakes existing with this resource, the proponent should measure and thoroughly analyze these points

instead of speculate.

Response: The point made in the PDEIS about phosphorus loading was not based on the argument that because of the abundance of sediment phosphorus, new additions would not increase releases. Instead, the processes necessary for releasing phosphorus into solution from sediment take place in the upper layers of sediment deposits on the lake bottom. Therefore the rate of release is not necessarily proportional to the amount of additional deposition.

18. Relative to the point about rarity, the event in question was responsible for sediment and related pollutant loading that would have occurred naturally only over decades (43 percent of 90 years contribution would take about 40 years in an undisturbed watershed). Furthermore, the mass wasting producing the sediment loading was triggered mostly by orphaned roads, which will not necessarily be remediated soon, or ever, under Alternatives 1 or 2. Moreover, something like the January 1983 event, although probably smaller, happened less than 8 years later, in November 1990. It surely again delivered to the lake a quantity of sediments that would have only entered over years at a natural rate, if the triggering abandoned roads were not there or were restored to forest. This period of time, in the 1980s and early 1990s, on the whole had less than average precipitation in most years, and hence may not even represent a worst case.

Response: When event driven processes are being evaluated, the severity of the event should be considered. Long-term averages do not provide any information. The January 1983 event was extremely severe, and the watershed has not yet experienced a comparable event to the present.

19. Regarding the second point enumerated in comment 17, I have already argued above that the mitigating effects of better future practices may very well be lost with many more miles of roads and areas disturbed by logging. The only way that the share of deterioration from forest exploitation can be reversed is through some combination of restoration of past damage, limitation on new disturbance, and implementation of substantially improved practices to mitigate what new disturbance does occur. This philosophy is embedded in the objectives but was not applied in developing Alternatives 1 and 2. There was no analysis of what is necessary to stop degradation and what strategies of restoration, limitation, and better practices can contribute to this end. Subsequent EIS work should make a quantitative analysis of this type using the best information and assumptions available.

Response: Quantitative analysis has been done through the Watershed Analysis process cited in the PDEIS.

20. Concerning the third point, the PDEIS admits that the large hydraulic loading during the big 1983 and 1990 precipitation events pushed water from Basin 3

into the remainder of the lake, at a time of massive pollutant inputs. Also, Basin 3 is itself a resource, and the state has an anti-degradation policy, although a weak one little known or honored. The PDEIS envisions policies applying for generations (a term of up to 140 years appears within its provisions). Is it saying that it is fine to allow preventable contamination over all of those years until the condition of Basin 3 approximates that of Basin I?

21. The fourth point ignores the realities of lake hydrology. In a body of water that does not exchange its contents for years, it is much more crucial what the contaminant loading is in relation to its flushing rate and morphometry than what happens in any one year.
22. The final point implying that things are already so bad that the DNR's plans for taking out much more timber could not make them worse is a unique argument in my experience. Lake trophic status is rated on degree of enrichment from oligotrophic (low enrichment), to mesotrophic (medium), to eutrophic (high), and in extreme cases to hypereutrophic. Lake Whatcom is by no means eutrophic yet, and could get much worse with carelessness. Future phosphorus additions will contribute to increased water column concentrations, supporting algal blooms in the short-term. It is inconceivable to me that all phosphorus binding sites in the sediments are consumed or isolated from contact with water column phosphorus. I strongly believe that sediment phosphorus build up will continue unless inputs decline. I further believe that phosphorus releases from sediments will grow as low oxygen conditions extend in time and space.
23. Alternatives 1 and 2 would perpetuate at least two poor practices from the past, allowing yarding of logs across streams and aerial chemical spraying. Although spraying directly on water would be prohibited, drift away from targets is highly likely. It is difficult to trust that the future will be bright with good practices when two non-essential environmentally harmful ones are retained.
24. All alternatives but 5 provide no buffer zones for wetlands smaller than 0.25 acre in area. Nowhere is it given how much of the total wetlands habitat is provided by these smallest wetlands, but it may be a considerable fraction. Small wetlands offer primary productivity, plant biodiversity, and habitat for at least the smaller consumers in the food web (invertebrates and amphibians). Amphibians are in regional and worldwide decline, in part because of habitat disappearance, which is significantly aggravated by cumulative small individual losses. Continuing analysis must determine how much impact of this type any alternative will produce, and judge the alternatives accordingly.

Response: The Washington State Habitat Conservation Plan, the Forest Resource Plan and the Lake Whatcom PDEIS do indeed leave out specific protection for wetlands under 0.25 acres. This is not because DNR believes that small wetlands are unimportant, in fact, there is evidence that the habitat value of smaller wetlands may be proportionately greater for amphibians than that of larger wetlands. The cutoff size of 0.25 acres was

based on operational feasibility; quite simply it is too difficult to locate a wetland smaller than that on an air photo, particularly if it happens to be a forested wetland. This does not mean that small wetlands on State lands are routinely clearcut, or that they do not receive protection. The HCP and FRP provide protection for seeps and wetlands under 0.25 acre “when necessary for water quality, fisheries habitat, stream banks, wildlife and other important elements of the aquatic system” (Forest Resource Plan Policy #20, DNR 1992 p. 35). Foresters generally clump “leave trees” around small wetlands on timber sales to protect the hydrology, soils and vegetation of the wetland.

The PDEIS does not include information on how much of the total wetland habitat in the planning unit is provided by small wetlands because DNR does not know. DNR uses two sources of data to provide information on the location and size of wetlands. The first is FPWET, a GIS coverage consisting of the National Wetlands Inventory data with Forest Practices wetland types superimposed. Because this data is derived from photo interpretation, it misses many small wetlands, as well as many wetlands that are hidden under forest canopies. The second data source is the FRIS inventory data, which includes any wetlands that inventory staff encountered on FRIS plots. The FRIS data was collected in random samples off of a grid, and while it has the advantage of being derived from field observations, wetlands were recorded only if they happened to appear on FRIS plots, so inevitably many wetlands would escape notice through the FRIS process. Unmapped wetlands are currently identified on the ground, timber sale by timber sale, as a comprehensive wetland inventory is beyond the State’s financial capability at this time.

25. Beyond forestry, Alternatives 1 and 2 allow potential drilling for oil and gas. Even if the probability of exploitable oil and gas reserves is low, no alternative should permit this activity in the drainage to a drinking water supply and important ecological resource.

In conclusion, further analysis and alternative development should concentrate on enhancing, as suggested in this letter and in other ways, the protections and restoration strategies built into present Alternatives 3 and 4, while retaining the restoration-oriented Alternative 5. With such a valuable natural and societal resource at stake, I advise the DNR to adopt a philosophy of first stopping and then soon reversing lake degradation originating its territory. I recommend that the department apply that philosophy initially by maximizing restoration and implementation of a full suite of state-of-the-art forest practices, and then by setting its harvest targets and road extensions within boundaries that will ensure cessation of deterioration from its operations. I would be pleased to answer any questions you may have and invite you to contact me if you wish.

Sincerely,
Richard R. Homer, Ph. D.

Comment LC3:

11/27/02

Dear DNR,

I attended the public meeting held 10/10/02 in Bellingham for the PDEIS for Lake Whatcom Landscape Plan. While this is my first comment, and I now find I don't have the documents to refer to in expressing my preferences, I hope this will count. As a 20-year resident of the watershed on my own forested 20 acres on Academy Rd., I want to support whichever Alternative it was that called for the very least roading and cutting, even if it doesn't result in the most revenue for the State Trusts. I believe that was Alt. E., correct?

I believe no forest system can be managed sustainably over the long term that allows any harvesting and roading. This watershed is particularly sensitive, therefore, the DNR will have to find another place to finance the School Trust with, or the schools another source of revenue. I have resisted profiting from the cutting of my old 2nd growth forest, and ask the DNR to do the same. I'd like more sun where I live too, but feel it'd be immoral to cut any trees, and so I have not; I live in the deep forest and appreciate it as such. I would like my gov't to respect the natural landcover as well whatever the cost politically & financially. End the exploitation of the trees & protect their benefits. We can do it. There are substitutes & the state gov't should take the lead in finding them.

Thank you,
Keith Anderson
1915 Academy Rd.
B'ham 98226

Response: Preference noted. We respectfully disagree with the opinion that sustainable forestry cannot occur if there is timber harvest. DNR has a fiduciary obligation to trust beneficiaries to provide revenue from the management of trust lands and under department policy manages trust forestlands sustainably. Please see responses to LP5, LP7 and BE12.

Comment LC4:

Sudden Valley

October 24, 2002

William Wallace
Northwest Region Manager
SEPA Center
Washington State Department of Natural Resources
1111 Washington Street, S. E.
MS: 47015
Olympia, WA 98504-7015

Subject: Sudden Valley Community Comments Regarding Lake Whatcom PDEIS

Dear Mr. Wallace:

Thank you for this opportunity to comment on the Lake Whatcom PDEIS. We understand and appreciate the fiduciary responsibility of the DNR to the people of Washington State. We believe that this responsibility can be balanced between pure economic gain and the health and welfare of the people within the Lake Whatcom watershed.

Lake Whatcom is the sole source of drinking water for more than 85,000 people. Sudden Valley draws its water directly from the lake, with a water treatment plan on our community property. Much of our community's property lies adjacent to DNR managed forest lands. As such, any decision DNR makes will affect us directly. Therefore, we wish to formally request DNR to consider Alternative 4.

The Lake Whatcom Bill passed in 2000 by legislature recognized the importance of this lake for clean drinking water and public safety. The key to ensuring a safe and abundant drinking water supply is to protect streams, unstable slopes and wetlands from excessive logging and road construction. Alternative 4 provides guidelines for all of these areas. It calls for broad buffers at least 200 feet wide where no trees are cut. Outside these buffers, where logging is appropriate, employing 200 year or more rotations, retaining a 70% canopy closure, and prohibiting road construction and chemical application will ensure high water quality in our drinking water supply for years to come.

The PDEIS executive summary suggests that Alternatives 3 and 4 dedicate about 90% of the trusts lands' productive capacity to ecological and social benefits. In considering the population makeup of the Lake Whatcom watershed we believe the benefits resulting from following guidelines of Alternative 4 more than offset the increase in timber harvest obtained from alternatives land 2.

On behalf of the 5,000 residents of Sudden Valley, we therefore urge you and the Lake

Whatcom Landscape Committee to select this alternative for further study, as we believe it provides the strongest protection both for our drinking water and from peak flows and possible mud and debris damage.

Sincerely,

Jon Wolfe, President
Sudden Valley Community Association
Board of Directors '

cc: Pete Kremen, Whatcom County Executive
Whatcom County Council Mayor Mark Asmundson
Senator Georgia Gardner Representative Kelli Linville
Representative Dave Quall Representative Jeff Morris
Linda Marrom

RESPONSE:

Chemical applications are highly regulated by federal and state laws including the product label, applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision. Forest chemicals are rarely used, and when they are, the use is in compliance with federal, state, and department standards in order to achieve desired forestry goals and protect water quality.

Comment LC5:

Report of the Lake Whatcom Advisory Committee to the Commissioner of Public Lands

Executive Summary

Concerns about the potential impacts to drinking water quality from proposed timber harvest practices by DNR resulted in the establishment of the Lake Whatcom Watershed DNR Advisory Committee (LWAC) on May 10, 1999 under SSSB 5536. The LWAC had representatives from the City of Bellingham, Whatcom County, the Whatcom County Water District #10, the Department of Ecology, the Department of Fish and Wildlife, the Department of Health and three general citizen members. The LWAC began meeting in September 1999 and during the course of several all-day meetings received briefings from a variety of technical experts. Following the briefings and committee discussion, the LWAC prepared a report to DNR. The findings of the LWAC include:

- Road deficiencies, particularly the Lookout Mountain Road, need to be addressed as soon as possible, independent of timber harvest. In part, increasing the percentage of the gross revenue retained by DNR for management can finance this.
- All streams, including Type 5 streams, need to have a no-harvest buffer.
- An Inter-jurisdictional committee should be established to advise DNR on proposed timber harvest practices in the Lake Whatcom Watershed. It should include state agency and tribal representatives plus representatives of Whatcom County, City of Bellingham and two general citizen members.

The Committee paid particular attention to the trust mandate, fiduciary responsibilities, and the long-term need to benefit all generations. In this regard, the DNR Habitat Conservation Plan (HCP) is a forward thinking interpretation of the mandate. While most of the Committee's report provides technical recommendations to strengthen the HCP and reduce direct water quality impacts, the group discussed the broader aspects of current forest management, potential effects on water quality, and economics. Two fundamental questions emerged: how can the current needs of the trusts be met or exceeded through diversification of revenue sources from trust lands, and how can, hydrologic integrity and biodiversity be protected in the long-term.

In the spirit of a pilot project, the Committee recommends that DNR expand the scope of its Landscape Planning to explore how it could generate revenue in Lake Whatcom watershed while increasing harvest rotation age. DNR should assess the costs and values of extending rotations to between 120 to 200 years, including the long-term benefits associated with mature hydrology and soil health. DNR should explore sustainable forestry (green) certification, alternative and nontimber forest products, and market possibilities for wood products derived from older forests. At a minimum DNR should investigate opportunities to add value to standing timber by contracting for services and creating wood products as opposed to selling stumpage. We understand that DNR is already considering some of these options for the trusts.

The Lake Whatcom watershed, with its involved local community, is an excellent place to explore the opportunities that could help define the evolution of commercial forestry in municipal watersheds.

Report of the Lake Whatcom Advisory Committee To the Commissioner of Public Lands

Background:

Concerns about the potential impacts to drinking water quality from proposed timber harvest practices resulted in the establishment of the Lake Whatcom DNR Advisory Committee (LWAC) on May 10, 1999 under SSSB 5536. Lake Whatcom is the source of drinking water for the City of Bellingham, for customers of Whatcom County Water District #10, and for approximately 250 households that draw water directly from the lake. Just under 50% of the Lake Whatcom watershed is owned by the Department of Natural Resources (DNR) and managed for timber production.

The Advisory committee had a representative from the City of Bellingham, Whatcom County, the Whatcom County Water District #10, the Department of Ecology, the Department of Fish and Wildlife, the Department of Health and three general citizen members.

The Committee was asked to:

- 1) examine issues affecting water quality in Lake Whatcom,
- 2) identify which factors are related to timber and associated practices on state trust lands,
- 3) identify standards above those required under RCW 90.48.420 and 90.48.425 that may be desirable to the community,
- 4) identify additional management actions that could be taken on state trust lands that would contribute to higher water quality standards, and
- 5) identify methods for compensating the trust if DNR is requested to alter management actions to produce water quality standards that exceed those required in RCW Chapter 90.48.

The Lake Whatcom DNR Advisory Committee began meeting in September 1999 and during the course of several all-day meetings received briefings from a variety of technical experts. Topics covered included:

details on DNR's HCP and how it is being implemented currently,
fish stock status in the Lake Whatcom watershed,
water quality,
road maintenance/abandonment, and
how timber harvest is being conducted, and forests being protected/restored, in other municipal watersheds in Washington State.

Findings:

- Protecting Type 5 stream riparian zones is key to protecting healthy stream networks.¹
- Some existing Forest roads (active and orphaned) in the watershed pose a serious threat to water quality, stream habitat and public safety concerns.
- A lower acceptable level of risk should be applied to timber harvest practices in watersheds providing municipal drinking water supplies relative to other watersheds in Washington.
- The first step in providing safe drinking water is to protect, maintain, and improve the quality of the source water. Subsequent steps can include filtration, treatment and disinfection of the treated water through the distribution system.
- Forested lands provide the best land cover for long term protection of water quality in Lake Whatcom. Commercial forestry can occur within the watershed and still protect Lake Whatcom water quality.
- Given the importance of municipal water supplies, and the State Department of Health emphasis on source protection, actions that encourage forests as a land use and minimize risks associated with forest practices are important.
- In taking steps to minimize impacts on water quality, care should be given to ensure that forest management remains a feasible land use. Actions that may result in pressures to convert forested lands to other more intensive land uses should be avoided.
- DNR is a valued partner in protecting and enhancing water quality in the Lake Whatcom watershed. Increasing state ownership of forestland in the Lake Whatcom watershed would benefit the long-term, sustainable management of the watershed.
- Locally adopted goals and policies promote low impact forest practices over residential development. The goals further recommend that zoning and development incentives be pursued to retain lands in long-term forestry, and that a forest management plan be developed that minimizes cumulative impacts on drinking water.
- A legacy of past forest practices such as logging in sensitive areas and poorly constructed roads has contributed to degraded water quality in many of the waterbodies in Washington, although it is not possible to determine the extent to which water quality impacts are caused by forest practices relative to other land uses/factors.

¹ Summary of recommendations found in (1) *Management Recommendations for Washington's Priority Habitats, Riparian*, pages 84-91, December 1997, and (2) *Effectiveness of Forest Road and Timber Harvest Best Management Practices with Respect to Sediment-Related Water Quality Impacts*, Department of Ecology & Timber, Fish & Wildlife Publication No. 99-317, page ix, May, 1999.

- The lack of site specific monitoring data results in an inability to determine compliance with state water quality standards.
- Recent changes in forest practices including legislative and internal policy direction, have reduced the likelihood of future adverse effects to water quality through changes to previously practices,
- However, a variety of factors make it difficult to determine if current practices alone will adequately meet water quality standards and minimize risk to water quality. This is because the current practices have either not been in place very long and there are few results of evaluation monitoring available.
- The use of pesticides and fertilizers by DNR was not reviewed by the LWAC due to a lack of time.
- Large woody debris is key to healthy streams.
- Other land practices (urban development) within the watershed should be equally protective of water quality as forest practices.

List of Recommendations

SPECIFIC STRATEGIES BASED ON EXISTING PROCEDURES

Roads

- Lookout Mountain Road must be brought into compliance with forest practice standards as soon as possible, independent of timber harvest plans.
- DNR should develop a comprehensive road construction, maintenance and abandonment plan, to include all existing and orphaned roads.
- By the year 2006, have all the roads, including orphan roads, within the LWW either decommissioned or brought up to forest practice standards.
- No new road construction should occur across unstable slopes without consensus of the Interjurisdictional committee proposed in Oversight/Management section.
- Allow flexibility in road construction standards to minimize water quality impacts, e.g., decreased width & curve radius; possible vehicle restriction.

Management of Riparian Zones and Unstable Slopes

- Type 5 streams should have a designated riparian management zone with a minimum horizontal width (each side) of 10 meters. Buffers should be windfirm.
- No timber harvest should occur in riparian management zones². Trees cut for yarding corridors through riparian zones should be retained as down wood.
- Should DNR identify the need to build roads, conduct yarding activities, stream rehabilitation or other potential major ground disturbing activities within riparian management zones, consultation should occur with the Inter-jurisdictional committee proposed in Oversight/Management recommendation.
- Edges of unstable slopes should be reviewed. DNR should leave windthrow buffers on unstable slopes.

Oversight/Management

- Develop a Sustainable Yield Model that is specific to the Lake Whatcom watershed.
- A DNR hosted Inter-jurisdictional committee should be established to address LWW site-specific implementation issues. The inter-jurisdictional committee should consist of appropriate state agency and tribal representatives plus invited technical representatives from Whatcom County; City of Bellingham; and two members of the general public. Recommendations of this group shall be to DNR as the landowner, and will be consensus-based.
- Concurrently DNR should communicate with the Lake Whatcom Management Committee for overall programmatic and education.
- DNR should continue to minimize or eliminate use of pesticides and fertilizers in the Lake Whatcom watershed.

Revenue/Funding

- Increasing the percentage of the gross revenue retained by DNR for management can finance much of the remedial actions necessary to correct legacies of past timber harvest practices statewide.
- Establish at the earliest possible time a revolving fund with sources not tied to timber harvests to address remedial actions correcting legacies of past timber harvest practices statewide. Repayment to the revolving fund would be apportioned from all trusts as revenue is generated.

² Riparian management zones should be measured from the edge of the channel migration zone.

- Expand the Jobs for the Environment criteria to allow resources to be allocated for restoration of watersheds that are a municipal water supply in addition to watersheds that have listed or critical anadromous stocks.

LEGISLATIVE QUESTION: *What factors need to be considered to achieve water quality standards beyond those required under chapter 90.48 RCW.*

The committee is not recommending water quality standards beyond those required under chapter 90.48 RCW.

At the core of 90.48 RCW is RCW 90.48.080 **Discharge of polluting matter in waters prohibited**. The section appears to set a zero tolerance standard. However RCW 90.48.420 **Water quality standards affected by forest practices – Department of ecology solely responsible for water quality standards – Forest practices regulations – Promulgation – Examination – Enforcement procedures** makes it clear that the intent of the legislature is to allow reasonable transient and short-term effects resulting from forest practices. The intent is to allow degradation under subsection WAC 173-20 1A-070 (4). There are three provisions that must be met for the degradation to be allowed. Provision (a) is a public process demonstrating overriding interest. Provision (b) requires the use of all known, available, and reasonable best management practices for non-point sources. Provision (c) prevents degradation that would interfere with existing beneficial uses.

As an example of how to determine all known, available, and reasonable best management practices, consider the committee's recommendations regarding buffers on type 5 streams. Stream side buffers are known and available best management practices that have been determined to be reasonable on Type 1, 2 and 3 waters state wide. As a result of the adoption of the DNR HCP, buffers on Type 4 streams are also deemed reasonable. The May 1999 publication Effectiveness of Forest Road and Timber Harvest Best Management Practices with Respect to Sediment-Related Water Quality Impacts published by the Cooperative Monitoring Effectiveness Research group (CMER part of the Forest Practices Board's Timber Fish & Wildlife process) recommends buffers on all streams. Because of the lower level of acceptable risk we conclude that no cut buffers on type 5 streams are now reasonable.

LC5 – RESPONSE:

The use of forest chemicals is restricted by federal and state laws including the product label applicator licensing requirements, and forest practices laws (which were developed to meet the requirements of the Clean Water Act). Forest Chemicals that are considered for use on state lands include fertilizers and pesticides such as herbicides, insecticides, and fungicides. DNR procedure 14-006-040 describes Controlling Competing Vegetation, including the priorities for treatment choices, herbicides that are available to DNR, and minimum buffer sizes. The use of insecticides and fungicides is an even more rare and carefully considered decision. Forest chemicals are rarely used, and when they are, the use is in compliance with federal, state, and department standards.

APPENDIX D

Correspondence between Commissioner of Public Lands Doug Sutherland and the Washington State Departments of Ecology and Health

The PDEIS Appendices included copies of two letters to Commissioner Doug Sutherland:

- November 15, 2001 letter from Megan White, Water Quality Program Manager, Washington State Department of Ecology and
- November 27, 2001 letter from Mary C. Selecky, Secretary, Washington State Department of Health.

Letters sent to each of these officials on November 8, 2001 from Commissioner Sutherland were not included in the PDEIS Appendices but are presented here.



November 8, 2001

Megan White, Program Manager
Department of Ecology
300 Desmond Drive
PO Box 47600
Lacey, WA 98504-7600

Dear Megan,

Thanks for sharing information with me regarding Ecology's TMDL Water Quality Study (TMDL) for Lake Whatcom. It is very helpful, however I have a follow-up request for some additional information.

Engrossed Second Substitute Senate Bill 6731 directs the DNR to develop a landscape plan for approximately 15,00 acres of state-owned forestlands in the Lake Whatcom watershed area. Public comments made during the DNR EIS scoping process in September raised some questions about the relationship of the TMDL and the landscape plan – some suggesting that the DNR plan should wait for the completion of the TMDL. Their comments document that the perception by some members of the community is that state forestlands are a significant source of the water quality problems in the lake. One of principal objectives for the plan is to protect water quality.

In your November 1, 2001 e-mail to me you indicated that due to the length of the TMDL study (submit to EPA end of June 2004) "we don't think it makes sense to us to have you wait to complete the landscape plan. We think the risk of having to revisit your work is small since the likelihood, once the TMDL is completed, of our asking a property owner who is engaged in a land use activity that generates a comparatively low level of pollution is small. Moreover, from Ecology's perspective, it doesn't make sense to stop activities that are likely to lead to pollution reductions".

For DNR to successfully complete the landscape plan, prior to the completion of the TMDL, all stakeholders must have a clear understanding of the role state forest lands have on water quality in the Lake Whatcom watershed. That information is essential to balancing the necessary watershed protection and restoration with other forest management objectives and strategies.

Given the public's perception of DNR's forest management in relation to water quality in the watershed, it would be helpful if you would clarify in writing the Department of Ecology's understanding of the following:

Megan White
November 8, 2001
Page 2

- The water quality pollution problems of the Lake Whatcom watershed
- Which of the pollution problems, and their approximate relative share, that originate on state forest land and
- What additional water quality protection measures, if any, should DNR consider beyond those already set forth in the Forest Practices Rules and the Lake Whatcom Watershed Analysis; the DNR Forest Resource Plan and HCP for state trust lands, and the additional requirements set forth in E2SSB 6731.

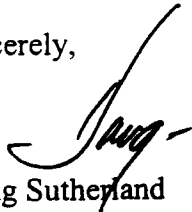
As you are aware, Steve Hood of Ecology is chair of the Lake Whatcom Landscape Planning Committee and is very knowledgeable of these requirements as they apply to Lake Whatcom. DNR Northwest Region staff tells me that Steve is doing a tremendous job as chair, as well as representing DOE.

I will be seeking similar Lake Whatcom water quality information from the Department of Health as it relates to the Safe Drinking Water Act.

The next meeting of the Lake Whatcom Landscape Planning Committee is scheduled for November 16th. Your written response, prior to then would allow us to share the information with the committee.

Thanks for your time and assistance.

Sincerely,



Doug Sutherland
Commissioner of Public Lands

Cc: Tom Fitzsimmons, Director, DOE



NOV 19 2001

TO THE COMMISSIONER

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

November 15, 2001

The Honorable Doug Sutherland
Commissioner of Public Lands
Department of Natural Resources
1111 Washington St. SE
P.O. Box 47001
Olympia WA 98504-7001

Dear Commissioner Sutherland:

Thank you for your interest in integrating the landscape planning activities that you are undertaking with Ecology's TMDL study of Lake Whatcom. Our experience to date indicates that the most successful TMDLs are those in which pollution reductions are implemented while data collection and analysis are taking place – before load allocations are even established.

While the Department of Natural Resource's "contribution" to pollution in Lake Whatcom is not expected to be a significant part of the problem, your efforts to evaluate and control pollution are a good example for all jurisdictions. When our TMDL study is complete in 2004, Ecology will likely require controls on the pollutants in stormwater. The areas where those controls are likely to be most needed are in the areas that have been developed. Pollution controls may be imposed as part of a stormwater permit issued to an appropriate jurisdiction by Ecology. The likelihood of Ecology imposing additional controls on pollution from commercial forestland is remote. Proper implementation and enforcement of forest practice rules should appropriately control pollution.

In your letter you asked for specific responses to three points. I have addressed each of them below.

- **The water quality pollution problems of the Lake Whatcom watershed**
Lake Whatcom fails clean water standards for dissolved oxygen. Low dissolved oxygen in the lake is partly caused by lake eutrophication processes. These processes are driven by the availability of nutrients and the physical conditions present in the lake during the summer and fall. In the case of Lake Whatcom, the limiting nutrient is phosphorus. Additions of phosphorus lead to greater production of algae. Dissolved oxygen is consumed as dead algae decomposed at the bottom of the lake.

November 15, 2001

The lake is also polluted with mercury. The problem is manifested in high levels of mercury in fish tissue. The mercury pollution problem is probably related to the dissolved oxygen problem. Profound and extended periods of anaerobic conditions (i.e., low/no oxygen) in the lake sediments favor conversion of mercury from inorganic forms to methylated forms. It is the methylated forms of mercury that bio-accumulate in fish tissue and are toxic to humans consuming fish.

The lake is also contaminated with PCBs, which have accumulated in fish tissue. The degree to which this contamination represents normal or abnormal levels in western Washington has not been determined. The level of contamination may represent ambient conditions for lakes in temperate regions of the world.

High levels of bacteria contaminate several of the tributaries of Lake Whatcom, though there are no indications of bacteria at the city of Bellingham's drinking water intake. Bacteria such as fecal coliform indicate a risk of exposure to pathogens when humans come into direct contact with polluted water during recreation or other water-based activities.

There have been suggestions that all of the tributaries of Lake Whatcom be placed on the 303(d) List for pollution of fine sediment. To date we have not received data to support this suggestion. Ecology's decision to propose listing based on fine sediment violations would require establishing an acceptable level of fine sediment for that particular waterbody, and documenting that unacceptable levels of sediments are due to human, rather than natural, causes. Forest practices have often been identified as a source of fine sediment pollution. However, Department of Natural Resource's compliance with current Forest Practice Rules should limit the contribution of fine sediment to streams from forestry activities. Until other sources have been similarly curtailed, we do not believe it would be appropriate to suggest additional reductions from forest sources.

- **Which of the pollution problems, and their approximate relative share, originate on state forest land**

Phosphorus enters a lake either through rain runoff (in its dissolved form) or by attaching to soil particles that are eroded into the lake. Historic forest practices that led to the mass wasting events of 1983 certainly contributed phosphorus to Lake Whatcom. However, recent forest practices such as Department of Natural Resource's watershed analysis and the Forest and Fish Agreement have focused on minimizing the risk of landslides. Phosphorus is essentially stripped from rainfall if stormwater is allowed to filter through forest soils. Overall, forestland is therefore expected to produce the lowest loads of phosphorus per acre.

It is also important to note that the problems with dissolved oxygen have been seen only in the most northern portions of the lake. Much of the phosphorus that enters the southern end of the lake is expected to settle to the bottom of the lake before it can impact the portion of the lake that has been identified as impaired.

November 15, 2001

Causes of increased phosphorus pollution of the lake are most likely the result of decreased permeability and increased runoff as the watershed around the lake is developed. Other sources include residential fertilizers and leakage from septic systems. Keeping land in forestland uses is an appropriate measure to protect against increasing phosphorus loading to the lake.

The sources of mercury in Lake Whatcom have not been fully evaluated but there is no reason to expect that forestry land uses are contributing to the problem unless airborne mercury pollution has been deposited over wide areas of trees for an extended period of time. Some of the potential mercury sources include natural mineral deposits, leachate from historic mining activities or solid waste disposal sites, deposition by air from industrial sources, and runoff from pesticides containing mercury.

PCB contamination is a global problem that has reached far beyond near proximity to sources. It is unlikely that any of the activities on state lands are contributing to the PCB contamination in Lake Whatcom.

Fecal coliform contamination in the tributaries of the Lake Whatcom watershed is associated with human residential development. Tributary samples from forest areas typically do not contain fecal coliforms.

- **What additional water quality protection measures, if any, should Department of Natural Resources consider beyond those already set forth in the Forest Practices Rules and the Lake Whatcom Watershed Analysis; the Department of Natural Resources' Forest Resource Plan and HCP for state trust lands, and the additional requirements set forth in E2SSB 6731**

The controls you describe for the state lands in the Lake Whatcom watershed are currently the state of the art for reducing the risk of pollution from commercial forestland. Properly managed commercial forestland has been recognized as the most benign active land use for watershed protection for some time. The possibility of additional controls being imposed as a result of a Lake Whatcom TMDL is remote. Cleanup of Lake Whatcom is more likely to be focused on reducing pollution from non-forestry land uses.

I hope that these answers help you move forward with developing you Landscape Plan.

Sincerely,



Megan White, P.E., Manager
Water Quality Program

cc: Tom Fitzsimmons, Ecology Director



November 8, 2001

Mary C. Selecky, Secretary
Washington State Department of Health
1112 SE Quince Street
PO Box 47890
Olympia, WA 98504-7890

Dear Mary:

I have some questions regarding water quality in the Lake Whatcom watershed. Given your agency's regulatory responsibility to implement the federal Safe Drinking Water Act, including source water protection plans, your response will be especially helpful.

As you probably are aware, Engrossed Second Substitute Senate Bill 6731 directs the DNR to develop a landscape plan for approximately 15,000 acres of state-owned forestlands in the Lake Whatcom watershed area. Public comments made during the DNR EIS scoping process in September raised questions about the relationship of Ecology's recently announced TMDL Water Quality Study (TMDL) for Lake Whatcom and the DNR landscape plan. Some comments even suggested that the DNR plan should wait for the completion of the TMDL. Their comments document that some members of the community perceive state forestlands to be a significant source of water quality problems in the lake. One of the principal objectives for the plan is to protect water quality.

For DNR to successfully complete the landscape plan, prior to the completion of the TMDL in 2004, all stakeholders must have a clear understanding of the role state forestlands have on water quality in the Lake Whatcom watershed. That information is essential to balancing the necessary watershed protection and restoration with other forest management objectives and strategies.

Given the public's perception of DNR's forest management in relation to water quality in the watershed, it would be helpful if you would clarify in writing the Department of Health's understanding of the following:

- Pollution sources identified in the Source Water Protection Plan for Lake Whatcom.
- Which of the pollution problems, and their approximated relative share, originate on state forest land and
- What additional water quality protection measures, if any, should DNR consider beyond those already set forth in the Forest Practices Rules and the Lake Whatcom Watershed Analysis; the DNR Forest Resource Plan and HCP for state trust lands; and the additional requirements set forth in E2SSB 6731.

Mary C. Selecky
November 8, 2001
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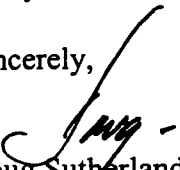
Richard Rodriguez of DOH is a member of the DNR Lake Whatcom Landscape Planning Committee and is familiar with these requirements as they apply to Lake Whatcom. DNR Northwest Region staff tell me that Richard is a tremendous asset to the committee.

I am seeking similar information about Lake Whatcom water quality from the Department of Ecology as it relates to the TMDL.

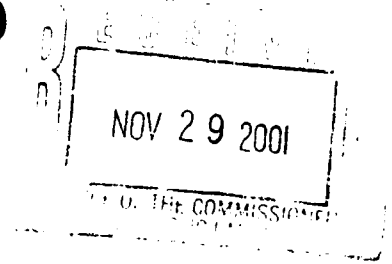
The next meeting of the DNR Lake Whatcom Landscape Committee is scheduled for November 16th. Your written response prior to then would allow us to share the information with the committee.

Many thanks for your help.

Sincerely,



Doug Sutherland
Commissioner of Public Lands



STATE OF WASHINGTON
DEPARTMENT OF HEALTH
1112 SE Quince Street • PO Box 47890
Olympia, Washington 98504-7890
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TDD Relay Service: 1-800-833-6388

November 27, 2001

The Honorable Doug Sutherland
Commissioner of Public Lands
Washington State Department of Natural Resources
1111 Washington Street Southeast
Post Office Box 47001
Olympia, Washington 98504-7001

Dear Mr. Sutherland:

Thank you for your recent letter regarding water quality in the Lake Whatcom watershed. I appreciate the opportunity to share with you and the Whatcom Landscape Committee our understanding of some of the issues surrounding the watershed. In addition, I would like to thank you for acknowledging the work of Richard Rodriguez. I will let him know that his efforts are appreciated.

The state's drinking water regulations require Group A water systems using surface water as a source of drinking water to develop watershed control programs. An essential element of a watershed control program is the identification of "activities/land uses detrimental to water quality." This element of the watershed control program should identify all activities/land use practices within the watershed that affect or have the potential to affect source water quality.

The Source Water Protection Plan for Lake Whatcom prepared by the City of Bellingham and Whatcom County Water District #10 (WCWD #10) identifies a number of activities, conditions, and land use practices within the watershed that have or could have an adverse impact on water quality. Additionally, these activities are prioritized by their potential to adversely impact water quality. These activities are generally classified as follows:

- TIER 1: Residential development, municipal/commercial uses, and transportation;
- TIER 2: Domestic livestock grazing and timber management;
- TIER 3: On-site septic, recreation and fish and wildlife;
- TIER 4: Mining;
- TIER 5: Alluvial fans; and
- TIER 6: Research and Education.

The Honorable Doug Sutherland
November 27, 2001
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We expect that the City of Bellingham and WCWD #10 assess the public health risk associated with each of these types of activities/land uses.

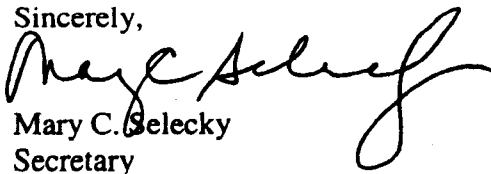
It is our understanding that very few of the potential contaminant sources identified in the Source Water Protection Plan for Lake Whatcom could originate from State Forest Lands or DNR activities. In addition, the water treatment facilities located on Lake Whatcom have been designed and constructed in response to activities historically associated with the state forest lands. A significant increase in the intensity of an activity or a significant change in the type of activities that are occurring would, of course, cause us concern about water quality.

At this time, the Department is not requesting any changes to the programs and documents mentioned in your letter. We have not received requests from the Lake Whatcom purveyors or from our Water Supply Advisory Committee to seek changes to the water quality protection measures that they identify. It is our understanding that the Forest Practice Rules and the DNR Forest Resources Plan and HCP were developed to protect the environment; typically, practices that protect the environment usually protect drinking water sources.

The Department participated in DNR's 1999 Lake Whatcom Interagency Advisory Committee. That advisory committee developed water quality protection recommendations that targeted prevention or reduction of future sediment loads reaching Lake Whatcom from DNR's activities in the watershed. DNR should consider implementing the recommendations of that committee. As noted, the Department is currently participating in DNR's Lake Whatcom Landscape Plan advisory committee. Site-specific recommendations identified by that process related to enhancing water quality should also be considered.

If you should have any further questions, please contact Bob James, Division of Drinking Water, Northwest Regional Office at 360-395-6768.

Sincerely,



Mary C. Selecky
Secretary

cc: Bob James
Richard Rodriguez